World Civilizations

An Abridged Edition

E. M. Burns and P. L. Ralph



W. W. NORTO

WORLD CIVILIZATIONS

An Abridged Edition

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NOTE

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Illustrations, copied from the half-tones of the original American Edition (1958), have been drawn for this abridged edition by Mr. Mustafa Monwar.

THE DAWN OF HISTORY *

	Geological Period			Characteristic Forms of Life	Culture Periods
3 billion— years ago	Precambrian			One-celled organisms First invertebrates: worms, algae	
510 million— years ago	Paleozoic	Cambrian Ordovician Silurian Devonian Mississippian Pennsylvanian Permian		Mollusks, sponges Insects, first vertebrates Corals, sharks, seaweed Lungfish, crustaceans Earliest amphibians Large amphibians Ferns	
180 million— years ago	Mesozoic	Triassic Jurassic Cretaceous		Giant reptiles Diversified reptiles, birds Marsupials, bony fishes Trees	
90 million— years ago	Cenozoic	Tertiary	Paleocene Eocene Oligocene Miocene Pliocene	Early mammals, first primates Primitive apes, ancestors of monkeys Ancestors of great apes Ancestors of man, modern mammals Early human species, other primates	Lower Paleolithic
1 million— years ago 7,000— years ago		Quaternary	Pleistocene Recent	Present day animals and races of men	Upper Paleolithic Neolithic Civilized man

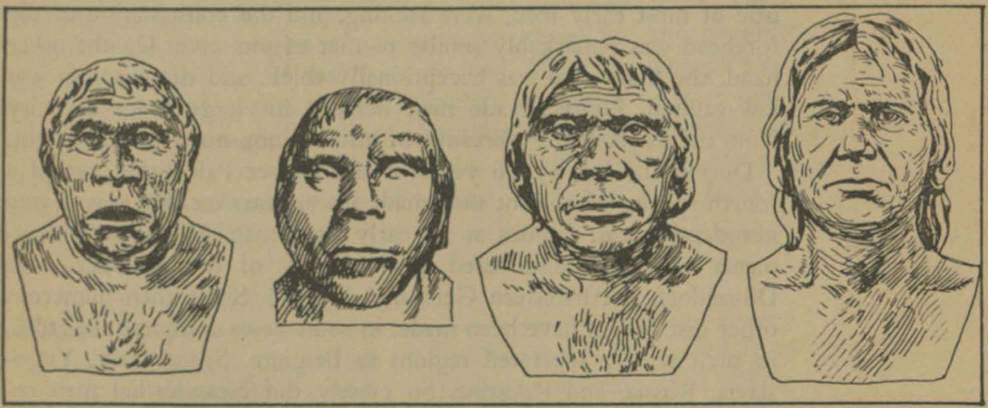
* Adapted from time scale issued by Geological Names Committee, 1958.

CHAPTER 1 The Stone Age

1. The Culture of Lower Paleolithic Men

The Paleolithic period can be dated from roughly 500,000 B.C. to 10,000 B.C. It is commonly divided into two stages, an earlier or Lower Paleolithic and a later or Upper Paleolithic. The Lower Paleolithic was much the longer of the two, covering at least 75 per cent of the entire Old Stone Age. During this time at least four species of men inhabited the earth. One was the famous *Pithecanthropus erectus*, or "erect ape man," whose skeletal remains were found on the island of Java in 1891. Originally only a skull cap, a thigh bone, three teeth, and part of a jaw bone were discovered. But in recent years other fragments, belonging to the same or a similar species, have been unearthed. As a result it is now possible to reconstruct the entire skull of Pithecanthropus. It has been established

The earliest Stone Age men: Java man



Reconstruction of the Skulls of Four Types of Stone Age Men: Java, Peking, Neanderthal, Cro-Magnon.

that his cranial capacity was nearly double that of a male gorilla, but only two-thirds that of modern man.

A second known inhabitant of the Lower Paleolithic was *Sinanthropus pekinensis*, whose skeletal remains were found in China, about forty miles southwest of Peking (Peiping), between 1926 and 1930. Since the latter date fragments of no fewer than 32 skeletons of the Sinanthropus type have been located, making possible a complete reconstruction of at least the head of this ancient species. Anthropologists generally agree that Sinanthropus and Pithecanthropus are of approximately the same antiquity, and that both probably descended from the same ancestral type. Until recently many scien-

Peking man

tists believed that the so-called Piltdown man, whose fragmentary "remains" were found in England in 1911, was a contemporary of the Java and Peking species. But in 1953 it was revealed that "Piltdown man" was a hoax. The fragments, which included a skull-cap and a jaw bone, had been skillfully altered. The jaw bone was actually that of an ape, chemically treated to make it appear aged, while the skull-cap was only about 50,000 years old.

Fontéchevade man

Much more dependable evidence exists of another Paleolithic man, although he did not make his appearance until the period was well advanced. This specimen was Fontéchevade man, so called from the cave in which his remains were found in 1947 in Charente, in southwestern France. Although the finds included only fragments of skulls, enough of them were intact to make possible accurate measurements. Moreover, the geological layer in which they were found, and also the one immediately above, was complete and undisturbed, so that little trouble could arise in assigning them to a chronological era. In certain respects Fontéchevade man resembled modern man more closely even than some ancestors of later origin. For example, the skull-cap dimensions were about the same as those of living Europeans. More interesting, the heavy eyebrow ridges, so characteristic of most early men, were lacking, and the construction of the forehead was remarkably similar to that of our own. On the other hand, the brain case was exceptionally thick, and the cranium was low-vaulted. Fontéchevade man derived his large brain capacity from the extraordinary breadth of his cranium, not from its height.

Neanderthal man

During the last 25,000 years of the Lower Paleolithic period a fourth species of ancient man made his appearance. He was *Homo neanderthalensis*, famous as an early cave man. His skeletal fragments were first discovered in the valley of the Neander, near Düsseldorf, northwestern Germany, in 1856. Since then numerous other discoveries have been made, in some cases complete skeletons, in such widely separated regions as Belgium, Spain, Italy, Yugoslavia, Russia, and Palestine. So closely did Neanderthal man resemble modern man that he is classified as a member of the same genus, the genus *Homo*. The resemblance, however, was by no means perfect. Neanderthal men, on the average, were only about five feet, four inches in height. They had receding chins and heavy eyebrow ridges. Although their foreheads sloped back and their brain cases were low-vaulted, their average cranial capacity was slightly greater than that of modern Caucasians. What this may have signified with respect to their intelligence cannot be determined.

Lower Paleolithic culture

The knowledge we possess of the culture of Lower Paleolithic men is scanty indeed. The skills they achieved and the learning they acquired must have been pitiful in quantity even when compared with the accomplishments of modern primitive men. Yet Pithecanthropus and his successors were not mere apes, forgetting in a moment the chance triumphs they had made. They undoubtedly had

the capacity for speech, which enabled them to communicate with their fellows and to pass on what they had learned to succeeding generations. We are justified in assuming also that they possessed reasoning ability, however crudely it may have been developed. Practically from the beginning, therefore, they were probably tool-using creatures, employing their wits to fashion implements and weapons. Perhaps at first these would be nothing but limbs broken from trees to be used as clubs. Eventually it was discovered that stones could be chipped in such a way as to give them cutting edges. The butt was then held in the palm of the hand. Thus evolved the so-called hand ax or fist hatchet, which appears to have served the combined purposes of a cleaver, saw, scraper, and knife.

Improvements made by Neanderthal man

Before the end of the Lower Paleolithic period, Neanderthal man seems largely to have abandoned the use of the fist hatchet. Improved methods of chipping stone enabled him to rely primarily upon the flakes themselves. The result was the development of spearheads, borers, and much superior knives and scrapers. Indications have been found also of a degree of advancement in nonmaterial culture. In the entrances to caves where Neanderthal man lived, or at least took refuge, evidence has been discovered of flint-working floors and stone hearths where huge fires appear to have been made. These would suggest the origins of co-operative group life and possibly the crude beginnings of social institutions. More significance may be attached to Neanderthal man's practice of bestowing care upon the bodies of his dead, interring with them in shallow graves tools and other objects of value. Perhaps this practice indicates the development of a religious sense, or at least a belief in some form of survival after death.

2. *Upper Paleolithic Culture*

The Upper Paleolithic period

About 30,000 B.C. the culture of the Old Stone Age passed from the Lower Paleolithic stage to the Upper Paleolithic. The Upper Paleolithic period lasted for only about 200 centuries, or from 30,000 to 10,000 B.C. A new and superior type of human being dominated the earth in this time. Biologically these men were closely related to modern man. Their foremost predecessors, Neanderthal men, had ceased to exist as a distinct variety. What became of the Neanderthalers is not known. According to one school of opinion, they were probably exterminated by their conquerors or perished through failure of their food supply. According to another school, they lost their identity merely through interbreeding with the newcomers. One branch of them in a remote area of the world may actually have been the ancestors of the new race that now became dominant.

The name used to designate the prevailing breed of Upper Paleolithic men is Cro-Magnon, from the Cro-Magnon cave in Dor-

Cro-Magnon man

dogne, France, where some of the most typical remains were discovered. Cro-Magnon men were tall, broad-shouldered, and erect, the males averaging over six feet. They had high foreheads, well-developed chins, and a cranial capacity about equal to the modern average. The heavy eyebrow ridges so typical of earlier species were lacking. Whether Cro-Magnon men left any survivors is a debatable question. They do not seem to have been exterminated but appear to have been driven into mountainous regions and to have been absorbed ultimately into later races.

Upper Paleolithic culture: tools and weapons

Upper Paleolithic culture was markedly superior to that which had gone before. Not only were tools and implements better made, but they existed in greater variety. They were not fashioned merely from flakes of stone and an occasional shaft of bone; other materials were used in abundance, particularly reindeer horn and ivory. Examples of the more complicated tools included the bone needle, the fishhook, the harpoon, the dart thrower, and, at the very end, the bow and arrow. That Upper Paleolithic man wore clothing is indicated by the fact that he made buttons and toggles of bone and horn and invented the needle. He did not know how to weave cloth, but animal skins sewn together proved a satisfactory substitute. Large numbers of perforated animal teeth and shells have also been found, suggesting that he made pendants and necklaces to adorn his person. It is certain that he cooked his food, for enormous hearths, evidently used for roasting flesh, have been discovered. In the vicinity of one at Solutré, in southern France, was a mass of charred bones, estimated to contain the remains of 100,000 large animals. Although Cro-Magnon man built no houses, except a few simple huts in regions where natural shelters did not abound, his life was not wholly nomadic. Evidences found in the caves that were his usual homes indicate that he must have used them, seasonally at least, for years at a time.

Evidences of social development

With respect to nonmaterial elements there are also indications that Upper Paleolithic culture represented a marked advancement. Group life was now more regular and more highly organized than ever before. The profusion of charred bones at Solutré and elsewhere probably indicates co-operative enterprise in the hunt and sharing of the results in great community feasts. The amazing workmanship displayed in tools and weapons and highly developed techniques in the arts could scarcely have been achieved without some division of labor. It appears certain, therefore, that Upper Paleolithic communities included professional artists and skilled craftsmen. In order to acquire such talents, certain members of the communities must have gone through long periods of training and given all their time to the practice of their specialties. In consequence they would have to be supported by the rest of the group. Thus an aristocracy would arise, and possibly the highest members of it would enjoy enough prestige to become rulers with limited au-

thority.

Sympathetic magic

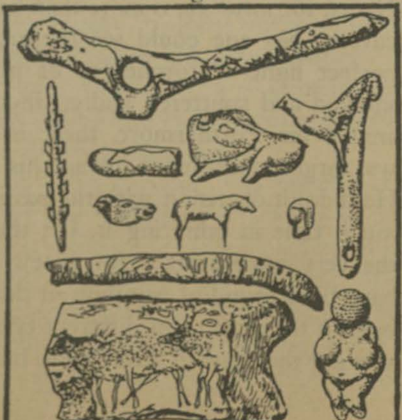
Substantial proof exists that Cro-Magnon man had highly developed notions of a world of unseen powers. He bestowed more care upon the bodies of his dead than did Neanderthal man, painting the corpses, folding the arms over the heart, and depositing pendants, necklaces, and richly carved weapons and tools in the graves. He formulated an elaborate system of sympathetic magic designed to increase his supply of food. Sympathetic magic is based upon the principle that imitating a desired result may bring about that result. Applying this principle, Cro-Magnon man made paintings on the walls of his caves depicting the capture of reindeer in the hunt, or he carved images of the cave bear with javelins piercing its side. At other times he fashioned clay models of the bison or mammoth and mutilated them with dart thrusts. The purpose of such representations was quite evidently to facilitate the very results portrayed and thereby to increase the hunter's success and make easier the struggle for existence. Possibly incantations or ceremonies accompanied the making of the pictures or images, and it is likely that the work of producing them was done during the actual hunt ...

Evidences of intellectual progress

The Upper Paleolithic period witnessed some slight intellectual progress. Cro-Magnon man could count, and the first mathematical records in the history of mankind made their appearance. These consisted of various objects: a notched javelin or dart thrower, for example, or a stag tooth scored horizontally with a sharp tool and worn as a pendant. All of them were probably records of animals slain in the hunt. A bare possibility exists that Cro-Magnon man developed a primitive system of writing. Various interesting signs have been discovered which give the appearance of being characters of a written language. They were probably nothing more, however, than conventionalized symbols of natural objects. Plenty of other evidence can be found that the art of this period often showed a tendency toward conventionalization. The possibility that a knowledge of writing existed at this time must be regarded as remote.

Upper Paleolithic art

The supreme achievement of Cro-Magnon man was his art—an achievement so original and resplendent that it ought to be counted



Examples of Upper Paleolithic Engraving and Sculpture. The two objects at the top and upper right are dart throwers. At the lower right is the famous Venus of Willendorf.

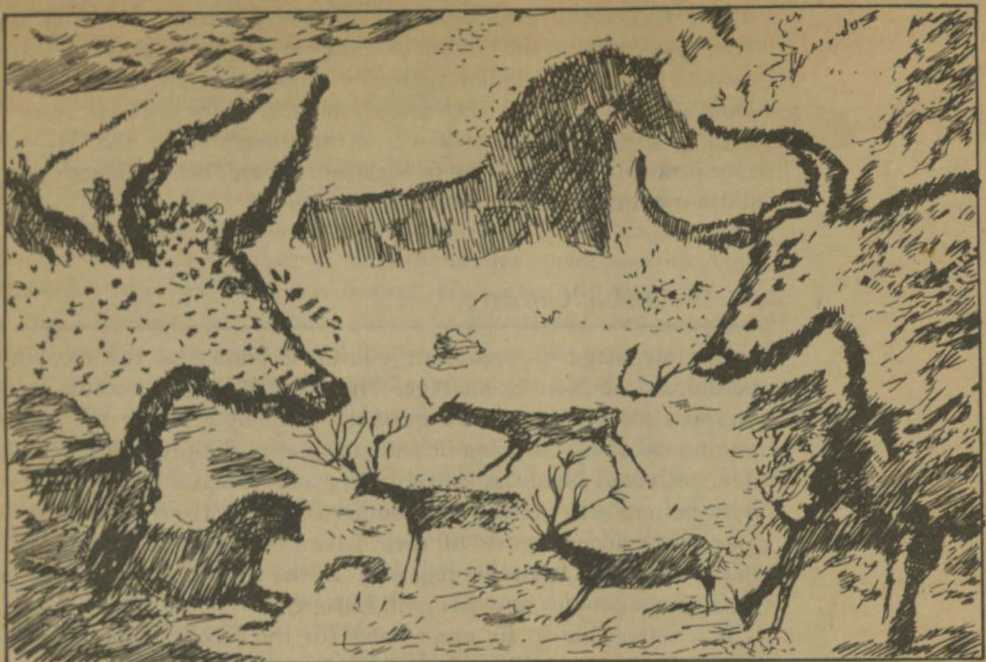
among the Seven Wonders of the World. Nothing else illustrates so well the great gulf between his culture and that of his predecessors. Upper Paleolithic art included nearly every branch that the material culture of the time made possible. Sculpture, painting, carving, and engraving were all represented. The ceramic arts and architecture were lacking, for pottery had not yet been invented, and no buildings were erected except of simple design.

Painting

The art *par excellence* of Cro-Magnon man was painting. Here were exhibited the greatest number and variety of his talents—his discrimination in the use of color, his meticulous attention to detail, his capacity for the employment of scale in depicting a group, and above all his genius for naturalism. The art of modern primitive folk resembles the art of a child; it portrays things not as they are, but in accordance with naïve preconceptions in the mind. The art of Upper Paleolithic man was remarkably free from such tendencies and showed a firm resolution to copy the world of nature with utmost fidelity. Especially noteworthy was the painter's skill in representing movement. A large proportion of his murals depicted animals running, leaping, browsing, chewing the cud, or facing the hunter at bay. Ingenious devices were often employed to give the impression of motion. Chief among them was the drawing or painting of additional outlines to indicate the areas into which the legs or the head of the animal had moved. But the scheme was so shrewdly executed that no appearance whatever of artificiality resulted.

Significance of Upper Paleolithic art

Cave-man art throws a flood of light on many problems relating to primitive mentality and folkways. To a certain extent it was undoubtedly an expression of a true aesthetic sense. Cro-Magnon man did obviously take some delight in the graceful line or symmetrical pattern or brilliant color. The fact that he painted and tattooed the body and wore ornaments gives evidence of this. But his chief works of art can scarcely have been produced for the sake of creating beautiful objects. Such a possibility must be excluded for several reasons. To begin with, the best of the paintings and drawings are usually to be found on the walls and ceilings of the darkest and most inaccessible parts of the caves. The gallery of paintings at Niaux, for instance, is more than half a mile from the entrance of the cavern. No one could see the artists' creations except in the imperfect light of torches or of primitive lamps which must have smoked and sputtered badly, since the only illuminating fluid was animal fat. Furthermore, there is evidence that Cro-Magnon man was largely indifferent toward his work of art after it was finished. He did not cherish it with the passing of the years, nor did he spend much time in admiring it. On the contrary, he was likely to use the very same surface for a new production. Numerous examples have been found of paintings or drawings superimposed upon earlier ones of the same or of different types. Evidently the important thing was not the finished work itself, but the act of making it.



Cave Drawings at Lascaux, France. Characteristic examples of the realism of Cro-Magnon man's art.

For Paleolithic man, art was a serious business. The real purpose of nearly all of it was apparently not to delight the senses but to make easier the struggle for existence by increasing the supply of animals useful for food. The artist himself was not an aesthete but a magician, and his art was a form of magic designed to promote the hunter's success. In this purpose lay its chief significance and the foundation of most of its special qualities. It suggests, for example, the real reason why game animals were almost the exclusive subjects of the great murals and why plant life and inanimate objects were seldom represented. It aids us in understanding Cro-Magnon man's neglect of the finished paintings and his predominant interest in the process by which they were made. Finally, magical purposes go far toward explaining the spectacular genius of the artist himself, for the very existence of the community was believed to depend upon the competent performance of his duties, and consequently no effort would be spared in giving him a thorough training.

Art as a serious business

Upper Paleolithic culture came to an untimely end about 10,000 B.C. Internal decay, exemplified by the decline of art, seems to have been one of the causes. The factors responsible cannot be determined exactly. Impatience with the old methods, a striving after "short cuts" that resulted in standardization and loss of originality, may have been one of them. A more obvious and doubtless more effective cause of the decline of the culture as a whole was partial destruction

The end of Upper Paleolithic culture

of the food supply. As the last great glacier retreated farther and farther northward, the climate of southern Europe became too warm for the reindeer, and they gradually migrated to the shores of the Baltic. The mammoth, whether for the same or for different reasons, became extinct. Representatives of the magnificent Cro-Magnon race probably followed the reindeer northward, but apparently they did not continue their cultural achievements.

3. Neolithic Culture

The meaning of the term Neolithic

The last stage of preliterate culture is known as the Neolithic period, or the New Stone Age. The name is applied because stone weapons and tools were now generally made by grinding and polishing instead of by chipping or fracturing as in the preceding periods. The bearers of Neolithic culture were new varieties of modern man who poured into Africa and southern Europe from western Asia. Since no evidence exists of their later extermination or wholesale migration, they must be regarded as the immediate ancestors of most of the peoples now living in Europe.

The varying dates of the Neolithic stage

It is impossible to fix exact dates for the Neolithic period. The culture was not well established in Europe until about 3000 B.C., though it certainly originated earlier. There is evidence that it existed in Egypt as far back as 5000 B.C., and that it probably began at an equally early date in southwestern Asia. There is also variation in the dates of its ending. It was superseded in the Nile valley by the first historic civilization soon after the year 4000.[1] Except on the island of Crete it did not come to an end anywhere in Europe before 2000, and in northern Europe much later still. In a few regions of the world it has not terminated yet. The natives of some islands of the Pacific, the Arctic regions of North America, and the jungles of Brazil are still in the Neolithic culture stage except for a few customs acquired from explorers and missionaries.

The Neolithic revolution

In many respects the New Stone Age was the most significant in the history of the world thus far. The level of material progress rose to new heights. Neolithic man had a better mastery of his environment than any of his predecessors. He was less likely to perish from a shift in climatic conditions or from the failure of some part of his food supply. This decided advantage was the result primarily of the development of agriculture and the domestication of animals. Whereas all of the men who had lived heretofore were mere food-gatherers, Neolithic man was a *food-producer.* Tilling the soil and keeping flocks and herds provided him with much more dependable food resources and at times yielded him a surplus. These circumstances made possible a more rapid increase of population,

[1] All dates in Egyptian history prior to 2000 are approximations and may represent a margin of error of several centuries.

promoted a settled existence, and fostered the growth of institutions. Such were the elements of a great social and economic revolution whose importance it would be almost impossible to exaggerate.

The wide distribution of the Neolithic culture

The new culture also derives significance from the fact that it was the first to be distributed over the *entire* world. Although some earlier cultures, especially those of Neanderthal and Cro-Magnon men, were widely dispersed, they were confined chiefly to the accessible mainland areas of the Old World. Neolithic man penetrated into every habitable area of the earth's surface—from Arctic wastes to the jungles of the tropics. He apparently made his way from a number of centers of origin to every nook and cranny of both hemispheres. He traveled incredible distances by water as well as by land, and eventually occupied every major island of the oceans, no matter how remote. Even Hawaii, situated 4000 miles from the Asiatic mainland, proved not to be beyond his reach. Whether he launched his vessel or raft for some visible goal, and then drifted out of his course and by a lucky accident was washed ashore before he starved to death, or whether he got there by skill or intent, it is certain he did arrive, for when the white men came the natives of the Hawaiian Islands had essentially the same pattern of culture as Neolithic men everywhere else.

Factors responsible for wide distribution

The factors responsible for this wide distribution cannot be determined with precision. It has been established that Neolithic man invented boats and rafts, without which he could never have escaped the confines of Asia, Africa, and Europe. But why he should have forced his way into steaming jungles, mountain fastnesses, and bleak and barren areas like Labrador and Patagonia remains an impenetrable mystery. We can only conjecture that increasing population required a constant search for new hunting areas and possibly for grazing and agricultural lands. Younger and more venturesome individuals would be forever striking out into new regions in the hope of improving their economic condition.

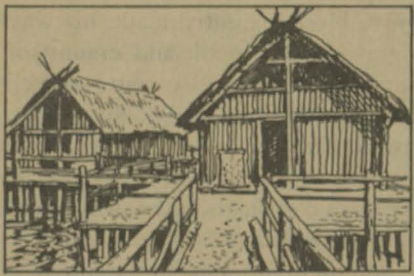
Importance of the Neolithic migrations

The historian would have difficulty in overestimating the importance of the Neolithic migrations. The net result was that they distributed a similar pattern of culture over the entire world. The few elements of earlier cultures which had managed to survive were almost completely inundated. Their disappearance means that we now have no way of discovering more than a small part of what went on in Paleolithic man's mind—whether he believed that government is an evil or that private property is sacred or that the world was created out of nothing. The fact that we find particular notions in the primitive mind of today does not prove that they are inseparable from the blood and sinew of the species, for it is necessary to remember that all existing primitive races are the beneficiaries or the victims of a common heritage.

The invention of boats and rafts was not the only example of Neolithic man's mechanical ingenuity. He developed the arts of

knitting, of spinning, and of weaving cloth. He made the first pottery and knew how to produce fire artificially by friction. He built houses of wood and sun-dried mud. Toward the end of the period he discovered the possibilities of metals, and a few implements of copper and gold were added to his stock. Since nothing was yet known of the arts of smelting and refining, the use of metals was limited to the more malleable ones occasionally found in the pure state in the form of nuggets.

New tools and technical skills



Neolithic Dwellings. Examples shown are restorations of Swiss lake dwellings. They were commonly erected on poles or stilts for purposes of defense.

But the real foundation stones of the Neolithic culture were the domestication of animals and the development of agriculture. Without these it is inconceivable that the culture would have attained the complexity it did. More than anything else they were responsible for the settled mode of existence, for the growth of villages and social institutions. They stimulated the rise of a division of labor and encouraged the practice of exchange. They compelled man constantly to seek new methods of harnessing nature and thereby led to an increase in his physical equipment and his store of knowledge.

Importance of agriculture and the domestication of animals

The first animal to be domesticated is generally thought to have been the dog, on the assumption that he would be continually hanging around the nunter's camp to pick up bones and scraps of meat. Eventually it would be discovered that he could be put to use in hunting, or possibly in guarding the camp. After achieving success in domesticating the dog, Neolithic man would logically turn his attention to other animals, especially to those he used for food. Before the period ended, at least five species—the cow, the dog, the goat, the sheep, and the pig—had been made to serve his needs. Not all of them in all parts of the world, however. The Neolithic tribes of the New World domesticated no animals at all, except the hairless dog in some parts of Mexico, the llama and the alpaca in the Andean highland, and the guinea pig and the turkey in a few other regions.

Origins of the domestication of animals

The exact spot where agriculture originated has never been positively determined. All we know is that wild grasses which were probably the ancestors of the cereal grains have been found in a number of places. Types of wheat grow wild in Asia Minor, in the Caucasus, and in Mesopotamia. Wild ancestors of barley have been

The beginning of agriculture

reported from North Africa, from Persia, from Asia Minor, and from Turkestan. Though it is probable that these were the first crops of Neolithic agriculture, they were by no means the only ones. Millet, vegetables, and numerous fruits were also grown. Flax was cultivated in the Old World for its textile fiber, and in some localities the growing of the poppy for opium had already begun. In the New World maize (Indian corn) was the only cereal crop, but the American Indians cultivated numerous other products, including tobacco, beans, squashes, pumpkins, and potatoes.

The nature of institutions

Historically, the most important feature of Neolithic culture was probably the development of institutions. An institution may be defined as a combination of group beliefs and activities organized in a relatively permanent fashion for the purpose of fulfilling some group need. It ordinarily includes a body of customs and traditions, a code of rules and standards, and physical extensions such as buildings, punitive devices, and facilities for communication and indoctrination. Since man is a social being, some of these elements probably existed from earliest times, but institutions in their fully developed form seem to have been an achievement of the Neolithic Age.

Definition of the family

One of the most ancient of human institutions is the family. Sociologists do not agree upon how it should be defined. Historically, however, the family has always meant a more or less permanent unit composed of parents and their offspring, which serves the purposes of care of the young, division of labor, acquisition and transmission of property, and preservation and transmission of beliefs and customs. The family is not now, and never has been, exclusively biological in character. Like most institutions, it has evolved through a long period of changing conventions which have given it a variety of functions and forms.

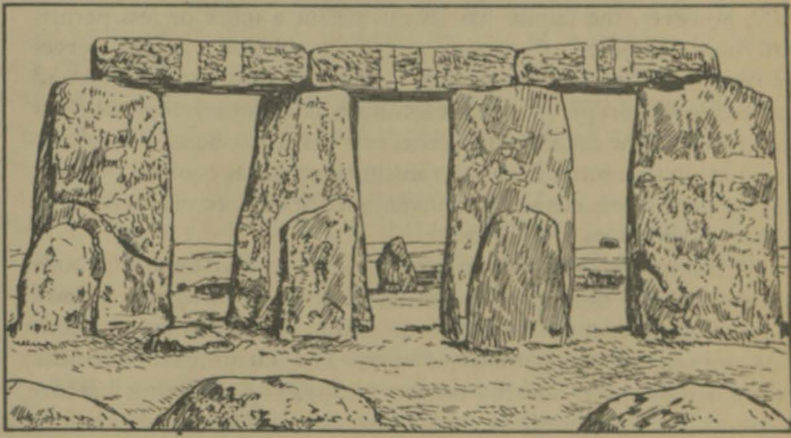
Polygamy

The family during Neolithic times appears to have existed in both polygamous and monogamous forms. The term polygamy is used by sociologists to mean any type of plural marriage—either a plurality of husbands or a plurality of wives. The scientific name for the former is *polyandry*, and for the latter *polygyny*. Polyandry seems always to have been rare. At the present time it is confined to a few Eskimo communities, to the Wahuma tribes of East Africa, and to southern India and Tibet. It appears to develop under conditions of extreme poverty where a number of men must pool their resources in order to purchase or support a wife, or where female infanticide is practiced as a means of controlling population growth. The latter custom soon results in an excess of males. Polygyny arises under a variety of conditions. In some cases it results from a preponderance of females. For example, the Arctic seal-hunter's life is so hazardous that in some villages the number of men may be less than half the number of women. In a few instances polygyny has been resorted to as a means of producing a rapid increase in the

population. Since one man can procreate far more offspring than one woman can bear, such peoples as the ancient Hebrews encouraged the taking of extra wives in order that the group might multiply rapidly and thereby protect itself against absorption or annihilation by hostile neighbors. Still a third factor in the origin of polygyny has been the love of display. Rulers and other rich men have maintained a plurality of wives as a form of conspicuous consumption. King Solomon kept a harem of 700 wives and 300 concubines, not necessarily because of a voracious sexual appetite, but in order to impress other monarchs with his ability to support such a large establishment. He was interested also, of course, in political alliances with as many as possible of the surrounding monarchs, and marrying their daughters was a convenient means of establishing these.

The nature of primitive religion; rites and ceremonies

A second institution developed in more complex form by Neolithic man was religion. On account of its infinite variations, it is hard to define, but perhaps the following would be accepted as an accurate definition of the institution in at least its basic character: "Religion is everywhere an expression in one form or another of a sense of dependence on a power outside ourselves, a power which



Megalithic Monuments at Stonehenge, England. The practice of erecting megaliths, or huge stone pillars and structures, was common in Neolithic cultures. Those at Stonehenge are probably the remains of a temple of sun worship.

we may speak of as a spiritual or moral power." [1] Modern anthropologists emphasize the fact that early religion was not so much a matter of belief as a matter of rites. For the most part, the rites came first; the myths, dogmas, and theologies were later rationalizations. Primitive man was universally dependent upon nature—on the regular succession of the seasons, on the rain falling when it

[1] A. R. Radcliffe-Brown, *Structure and Function in Primitive Society*, p. 157.

should, on the growth of plants and the reproduction of animals. Unless he performed sacrifices and rites these natural phenomena, according to his notion, would nor occur. For this reason he developed rain-making ceremonies in which water was sprinkled on ears of corn to imitate the falling of the rain. The ceremonial dances of the American Indians often had a similar import. The members of a whole village or even a whole tribe would attire themselves in animal skins and mimic the habits and activities of some species they depended upon for food. They apparently had a vague feeling that by imitating the life pattern of the species they were helping to guarantee its continuance.

The element of fear

But there was also another element conspicuously present in primitive religion. This was the element of fear. Modern primitive men, at least, live in an almost constant state of alarm and dread. As an old Eskimo medicine man said to the explorer Knud Rasmussen: "We do not believe; we fear."[1] Everything strange and unfamiliar is fraught with danger. The savage fears not only sickness and death but also hunger, drought, storms, the spirits of the dead, and the animals he has killed. Every misfortune, loss, or failure is the harbinger of other misfortunes and failures unless the evil influence that caused them is appeased, paralyzed, or annihilated. To accomplish such ends, charms, incantations, and other devices of magic potency seem to be a vital necessity.

Ceremonies to ward off evil

It follows that a large part of primitive man's religion consists of ceremonial precautions to ward off evil. For example, no savage will risk swimming across a dangerous river without first endeavoring by prayers or incantations to win its favor. An Eskimo who has killed a polar bear must present it with tools and weapons pleasing to it; if the bear is a female, women's knives and needle cases are given. Bestowal of these gifts is considered necessary to appease the wrath of the bear's soul and keep it from wreaking damage. In West Africa, the hunter who has killed a hippopotamus disembowels it, strips himself naked, crawls inside the carcass, and bathes his entire body with the animal's blood. Throughout the procedure he prays to the spirit of the hippo that it will bear him no ill-will for having killed it, and that it will not incite other hippopotami to attack his canoe in revenge.[2]

Neolithic man's prelogical mind

Between the sort of religion just described and the theological religions of Judaism, Christianity, and Islam there seems only the vaguest connection. Most Neolithic men were and still are in a prelogical stage. Their thinking resembles more closely that of a child than it does the thinking of civilized man. They draw no sharp distinction between animate and inanimate objects or between the natural and the supernatural. They recognize no miracles, for nothing is impossible or absurd. In like manner, there are no

[1] Lucien Lévy-Bruhl, *Primitives and the Supernatural*, p. 22.
[2] Lucien Lévy-Bruhl, *How Natives Think*, p. 238.

accidents, for every happening has its mystic significance. Should a child fall into the fire, someone has bewitched him, and the parents will not rest until they have found the culprit. Most primitive men today have little conception of natural cause. Some tribes reject completely the idea of natural death. Others have no notion of natural birth. They see no definite connection between sexual intercourse and reproduction. The union of male and female is merely to prepare the way for a spirit to enter the woman's body and make her pregnant.

The transition to theological religion

Probably the first intellectual revolution in the history of mankind was the transition from the prelogical basis of primitive religion to the type of religious thinking which rests upon a belief in benevolent gods and a philosophical explanation of the universe. How the transition was accomplished, no one knows. Apparently some tribes developed the idea that supernatural beings in manlike form would be more capable of hearing and answering entreaties than disembodied spirits or ghosts. Since prehistoric man almost universally assumed that the spirit of a human being survived the death of his body, and since medicine men were widely revered, it seems possible that the spirits of some of these may have been transferred to mountain tops or to homes in the sky and worshiped as gods. Perhaps in some other cases the awakening of an ethical sense led to a belief in one or more gods as the upholders of righteousness and justice. Such ideas would doubtless come to the minds of exceptional men almost from the beginning, with the result that in particular areas a belief in a single divinity of goodness might well co-exist with the most primitive fears of ghosts and witches. Whatever their origin, personal deities were venerated by the earliest civilizations, and it seems certain that beliefs concerning them did come into existence during the Neolithic culture stage.

The state defined

Still another of the great institutions to be developed by Neolithic man was the state. By way of definition, the state may be described as an organized society occupying a definite territory and possessing an authoritative government independent of external control. The essence of the state is sovereignty, or the power to make and administer laws and to preserve social order by punishing men for infractions of those laws. A state must not be confused with a nation. The latter is an ethnic concept, used to designate a people bound together by ties of language, customs, or racial origin or by common memories or a belief in a common destiny. A nation may or may not occupy a definite territory and does not possess the element of sovereignty. It may not even have an independent government, as for example the Poles during the long period when they were under Austrian, German, and Russian rule. At the present time most nations are also states, but this condition has resulted largely from the breaking up of the Russian, Austrian, German, and Turkish empires at the end of World War I.

Except in time of crisis, the state does not exist in a very large proportion of primitive societies—a fact which probably indicates that its genesis was rather late in the Neolithic culture stage. Most savage communities have no permanent system of courts, no police agencies, and no governments with coercive power. Custom takes the place of law, the blood-feud is the mode of administering justice, and there is very little conception of crime against the community. To primitive man, offenses are mostly what we call "torts," or private wrongs between individuals or families, in the punishment of which no public authority takes part. The acceptance of *wergeld*, or blood-money, is a common practice, and even felonies such as murder are regarded merely as offenses against the victim's family. Since the family of the victim has been deprived of a valuable member, the proper satisfaction is a money payment. If this is not offered, the family may retaliate in kind by killing the offender or a member of the offender's family. Practically the only wrongs against society are violations of *taboos*, or religious prohibitions. but the punishment for these is religious, not political.

Absence of the state in many primitive societies

The origin of the state was probably the consequence of a variety of factors. We are certainly justified in assuming the development of agriculture to have been one of the most important. In sections like the Nile valley, where a numerous population lived by cultivating intensively a limited area of fertile soil, a high degree of social organization was absolutely essential. Ancient customs would not suffice for the definition of rights and duties in such a society, with its high standard of living, its unequal distribution of wealth, and its wide scope for the clash of personal interests. New measures of social control would become necessary, which could scarcely be achieved in any other way than by setting up a government of sovereign authority and submitting to it; in other words, by establishing a state. The result would not be accomplished in a single day or even in a single year. The initial forms of public control would be few and tentative, but they would be gradually extended, until finally a state, not necessarily despotic, but with full authority, would come into being.

A variety of causes of the origin of the state

A number of ancient states evidently owed their origin to war activities. That is, they were founded for purposes of conquest, for defense against invasion, or to make possible the expulsion of an invader from the country. The Hebrew monarchy seems to have been a product of the first of these reasons. With the war for the conquest of Canaan none too successful, the Hebrew people besought their leader Samuel to give them a king, that they might be "like all the nations" with a powerful ruler to keep them in order and to lead them to victory in battle. One has only to observe the effects of modern warfare, both offensive and defensive, in strengthening and enlarging the powers of government to see how similar

Origin of the state through military causes

influences might have operated to bring the state into existence in the first place.

The factor of leadership

Some modern anthropologists attach great importance to leadership as a factor in the origin of the state. They point out that in time of crisis an individual of commanding qualities often steps out from the crowd and takes control. In a shipwreck, for example, one of the men in a lifeboat assumes authority, rationing the water and food, if any, and keeping his companions in order. Among the Bushmen of Australia and among the Eskimos, no political institutions exist at all under ordinary circumstances. But when an emergency arises, someone takes the leadership for the duration of the crisis, and what was originally an informal band of hunters takes on the character of a rudimentary state. Among peoples leading a more settled existence the leader has frequently become a sort of political boss, presiding over a "machine," and dispensing feasts and other favors. Sometimes he is revered as almost divine, as a symbol of the unity and interdependence of the group. It is assumed that the members live through him as the body of an individual lives through its head.

Other causes

Although evidence can be found to support all of the above hypotheses, they should not be regarded as the exclusive explanations. Religion doubtless contributed to the origin of states in some areas. Medicine men, or shamans, frequently exercise a kind of sovereignty. Though they may command no physical force, their power to impose religious penalties and to strike terror into the hearts of their followers gives them a degree of coercive authority. In all probability some of them made themselves kings. It is conceivable that in other cases the state arose from the natural expansion of group life, with its resulting complexities and conflicts. As the population increased in limited areas, customary law and family administration of justice proved inadequate, and political organization became necessary as a substitute. In the domain of politics as in every other sphere concerned with social origins, no one explanation can be made to accommodate all the facts.

CHAPTER 2 The Nature and Origin of Civilizations

1. Cultures and Civilizations

Culture defined

The stages of man's advancement described thus far have been referred to as *cultures*. This word is commonly used to designate societies or periods which have not yet attained to a knowledge of writing and whose general level of achievement is comparatively

primitive. But the term has other meanings. It is sometimes applied to intellectual and artistic accomplishments, to literature, art, music, philosophy, and science. It is employed by some historians to designate the whole complex pattern of ideas, achievements, traditions, and characteristics of a nation or empire at a particular time.

The meaning of civilization

The term *civilization* also carries a variety of meanings. The German philosopher of history Oswald Spengler referred to civilizations as decadent phases of highly developed cultures. When a great people or empire was in its prime, he characterized its social and intellectual pattern as a culture. When it passed its prime and became ossified and stagnant, he described it as a "civilization." The noted British historian Arnold J. Toynbee also sees world history as a succession of cultural units. But he designates each of the primary ones, throughout its development, as a "civilization." He distinguishes between civilizations and "primitive societies" largely on a quantitative basis. The latter are "relatively short-lived, are restricted to relatively narrow geographical areas, and embrace relatively small numbers of human beings."

The term *civilization* has still another meaning. Since each culture has peculiar features of its own, and since some cultures are more highly developed than others, we can speak quite properly of a civilization as a superior culture. We can say that a culture deserves to be called a civilization when it has reached a stage of advancement in which writing has come to be used to a considerable extent, some progress has been made in the arts and sciences, and political, social, and economic institutions have developed sufficiently to conquer at least some of the problems of order, security, and efficiency in a complex society. This is the sense in which the term will be used throughout the remainder of this book.

2. Factors Responsible for the Origin and Growth of Civilizations

Origin and growth of civilizations variously explained

What causes contribute to the rise of civilizations? What factors account for their growth? Why do some civilizations reach much higher levels of development than others? Inquiry into these questions is one of the chief pursuits of social scientists. Some decide that factors of geography are the most important. Others stress economic resources, food supply, contact with older civilizations, and so on. Usually a variety of causes is acknowledged, but one is commonly singled out as deserving special emphasis.

Geographic theories: the climatic hypothesis

Probably the most popular of the theories accounting for the rise of superior cultures are those which come under the heading of geography. Prominent among them is the hypothesis of climate. The climatic theory, advocated in days past by such notables as Aristotle and Montesquieu, received its most eloquent exposition in the

writings of an American geographer, Ellsworth Huntington. Dr. Huntington acknowledged the importance of other factors, but he insisted that no nation, either ancient or modern, rose to the highest cultural status except under the influence of a climatic stimulus. He described the ideal climate as one in which the mean temperature seldom falls below the mental optimum of 38 degrees or rises above the physical optimum of 64 degrees. But temperature is not alone important. Moisture is also essential, and the humidity should average about 75 per cent. Finally, the weather must not be uniform: cyclonic storms, or ordinary storms resulting in weather changes from day to day, must have sufficient frequency and intensity to clear the atmosphere every once in a while and produce those sudden variations in temperature which seem to be necessary to exhilarate and revitalize man.

Evidence in favor of the climatic hypothesis

Much can be said in favor of the climatic hypothesis. Certainly some parts of the earth's surface, under existing atmospheric conditions, could never cradle a superior culture. They are either too hot, too humid, too cold, or too dry. Such is the case of regions beyond the Arctic Circle, the larger desert areas, and the jungles of India, Central America, and Brazil. Evidence is available, moreover, to show that some of these places have not always suffered under climate so adverse as that now prevalent. Various inhospitable sections of Asia, Africa, and America contain unmistakable traces of more salubrious days in the past. Here and there are the ruins of towns and cities where now the supply of water seems totally inadequate. Roads traverse deserts which at present are impassable. Bridges span river beds which have had no water in them for years. These and similar phenomena, observed by travelers in desert regions, appear to furnish proof that the climatic factor in history cannot be ignored.

The Mayan civilization

The best-known evidences of the cultural importance of climatic change are those pertaining to the civilization of the Mayas. Mayan civilization flourished in Guatemala, Honduras, and on the peninsula of Yucatan in Mexico from about 400 to 1500 A.D. Numbered among its achievements were the making of paper, the invention of the zero, the perfection of a solar calendar, and the development of a system of writing partly phonetic. Great cities were built; marked progress was made in astronomy; and sculpture and architecture were advanced to high levels. At present most of the civilization is in ruins. No doubt many factors conspired to produce its untimely end, including deadly wars between tribes, but climatic change was also probably involved. The remains of most of the great cities are now surrounded by jungles, where malaria is prevalent and agriculture difficult. That the Mayan civilization or any other could have grown to maturity under conditions like these is hard to believe. It seems probable, therefore, that the climate of the Mayan region some five or six centuries ago was different from what it is now.

But the hypothesis is open to criticism on several counts. Evidences of climatic change on a significant scale are still very far from conclusive. There is nothing to indicate, for example, that the climate of Greece and Rome in ancient times was more invigorating than it is at present. Moisture conditions in ancient Greece were undoubtedly more favorable, but there is no proof of alterations in temperature. Nor can the decline of civilization in Egypt and Mesopotamia be accounted for by radical changes in atmospheric conditions. Most of the evidence seems to show that economic and social factors, such as the exhaustion of resources and the growth of slavery and habits of indolence, had far greater effects.

Criticism of the climatic hypothesis

Related to the climatic hypothesis is the soil-exhaustion theory. A group of modern conservationists has hit upon this theory as the sole explanation of the decay and collapse of the great empires of the past and as a universal threat to the nations of the present and future. At best it is only a partial hypothesis, since it offers no theory of the birth or growth of civilizations. But its proponents seem to think that almost any environment not ruined by man is capable of nourishing a superior culture. The great deserts and barren areas of the earth, they maintain, are not natural but artificial, created by man through bad grazing and farming practices. Conservationists discover innumerable evidences of waste and neglect that have wrought havoc in such areas as Mesopotamia, Palestine, Greece, Italy, China, and Mexico. The majestic civilizations that once flourished in these countries were ultimately doomed by the simple fact that their soil would no longer provide sufficient food for the population. As a consequence, the more intelligent citizens migrated elsewhere and left their inferiors to sink slowly into stagnation and apathy. But the fate that overtook the latter was not of their making alone. The whole nation had been guilty of plundering the forests, mining the soil, and pasturing flocks on the land until the grass was eaten down to the very roots Among the tragic results were floods alternating with droughts, since there were no longer any forests to regulate the run-off of rain or snow. At the same time, much of the top soil on the close-cropped or excessively cultivated hillsides was blown away or washed into the rivers to be carried eventually down to the sea. The damage done was irreparable, since about 300 years are required to produce a single inch of top soil.

The soil-exhaustion theory

Yet another of the geographic theories is the contention that the topography of the earth's surface has been the main conditioning element in the rise of civilizations. A famous champion of this theory was Karl Ritter, a German who lived in the first half of the nineteenth century. Ritter maintained that the form and shape of continents are of great importance in providing advantages for cultural growth. Continents possessing an irregular coast line and diversified geographic conditions furnish the only favorable en-

The topographical theory

vironments for the progress of nations. The more compact and homogeneous a continent is, the more backward will be its inhabitants. Over the whole territory their culture will be uniform, and the absence of good harbors will limit contact with the world outside. The result will be stagnation. By contrast, peoples living on a continent such as Europe, with its sharply broken coast line and its varied geographic features, enjoy notable advantages. Their land is accessible by water to its very heart. Numerous bays and harbors and islands off the coast render seafaring easy and break the isolation that would be otherwise inevitable. As a consequence, it is not strange that Europe has been able to develop "the highest of all civilizations."

Even more famous as an exponent of the topographical theory was the English historian Henry Thomas Buckle (1821–1862). Buckle divided the principal environments of man into two classes: (1) those that stimulate the imagination, and (2) those that sharpen the understanding. To illustrate the former he submitted the example of India, where the works of nature are of "startling magnitude," overawing man and impressing him with a sense of his own insignificance. The natives therefore torture themselves, invent cruel and terrifying gods, and practice a religion of hideous orgies. They are pessimists and fatalists, denying all value to life and repudiating the ability of man to understand and control his world. As an example of the second class of environments, Buckle referred to Greece, where the face of nature is more ordinary and "less threatening to man." Such an environment, he argued, promotes the elevation of man, generates an attitude of optimism, and stimulates a feeling of confidence in the powers of the human mind. He considered it no miracle, therefore, that Greece should have been able to produce one of the world's most distinguished cultures and some of the greatest critical thinkers of all time.

Criticism of the topographical theory

The topographical theory seems to have comparatively little to confirm it. No geologist would agree that coastal indentations and the altitude of mountain ranges have altered much within the range of historic time. Greece has no fewer harbors now than in the age of Pericles, nor has Mount Olympus risen in recent years to any proportions of "startling magnitude." Yet the modern Greeks do not match their ancestors in intellectual accomplishment. If the influence of topography was at one time conducive to rational thinking and to the development of confidence and joy in achievement, why should that influence have ceased to operate? The theory does not explain either how a country like Switzerland could become one of the leading centers of enlightenment of the present day. On the other hand, there is no gainsaying the fact that a long and irregular coast line is an asset in the development of trade, and therefore an important advantage in the diffusion and reception of knowledge.

According to some philosophers of history, most of the great historic cultures were founded by nomads. The foremost exponent of this theory was a German, Franz Oppenheimer. He and his followers contended that nomads were the original conquerors of primitive cultures and the founders of the state and of complex society. Exploitation of the labor of the vanquished and confiscation of their wealth, he asserted, enabled the conquerors to live in ease and luxury. They established themselves as a nobility and bought or commandeered for their own entertainment whatever talent the country afforded. In time they came to encourage actively the progress of learning and the arts as symbols of their life of leisure and their privileged position. They alone had time to enjoy such things, and, besides, patronage of artists and men of letters served as a convenient form of luxurious display.

The nomad theory

Oppenheimer maintained that the diet of the herdsman, consisting as it does of meat and milk, is highly nourishing. The nomad, consequently, has boundless energy. He infuses new life into stagnant peoples wherever he goes. Brutal and domineering though he may be, he nevertheless builds the organization, imposes the discipline, and creates the inequalities of rank and class which seem to be necessary as foundations for cultural growth. Moreover, the customs and diet of pastoral folk are conducive to rapid increases of population. The form of marriage is commonly polygamous, and a plentiful supply of the milk of animals "shortens the period of nursing for the mothers, and consequently permits a greater number of children to be born and to grow into maturity." The result is that nomads periodically burst their territorial confines and invade and conquer the lands of more settled peoples.

Evidence of a sort can be discovered in abundance to corroborate this theory. Not a few of the great cultures of the past appear to have been founded by conquering nomads. Three great reservoirs of humanity seem time after time to have let loose inundations of peoples that poured into the more fertile areas of the Old World. From the grasslands north of the Arabian Desert came the Babylonians, Assyrians, and Chaldeans successively to conquer the Tigris-Euphrates valley. From the steppes of central Asia issued the Medes, Persians, and Indians, and probably most of the ancestors of the nations of Europe. The Arabian Desert itself was the starting point of the Hebrew migrations into the land of Canaan and of the conquests of the Moslems. All of these focal areas are unsuited to agriculture; to this day they are inhabited by nomads. It follows that the peoples mentioned must originally have lived under the pastoral economy, even though some of them had abandoned their flocks and herds at the time they made their principal conquests.

Evidence to confirm the nomad theory

But the nomad theory has its shortcomings as an explanation of the rise of superior cultures. Certainly it cannot be used to account for the origin of all of them. The Egyptian civilization, for example,

appears to have been established by people who derived their livelihood primarily from agriculture. The Phoenicians, who came from Babylonia about 2000 B.C. to found a maritime culture in the Lebanon valley, must have been long accustomed to the peaceful arts of tilling the soil before their migration. Moreover, there is reason to believe that most of the great inventions and discoveries which provided the original basis of civilization were made by peaceful, agricultural peoples. Such folk seem to have originated irrigation, mathematics, and astronomy, and systems of writing. The American economist and philosopher Thorstein Veblen declared that nomadic peoples made no significant contributions whatever, with the exceptions of poetry and religious creeds and cults. But the fact remains that conquering nomads did infuse new energy into the cultures of settled areas and probably goaded the inhabitants into activity which ultimately resulted in achievements. Moreover, the circumstances surrounding the original expansion of such peoples as the Babylonians, the Assyrians, the Hebrews, and the Moslems leave little doubt that the conditions of nomadic existence were partly responsible for the fact that they founded civilizations.

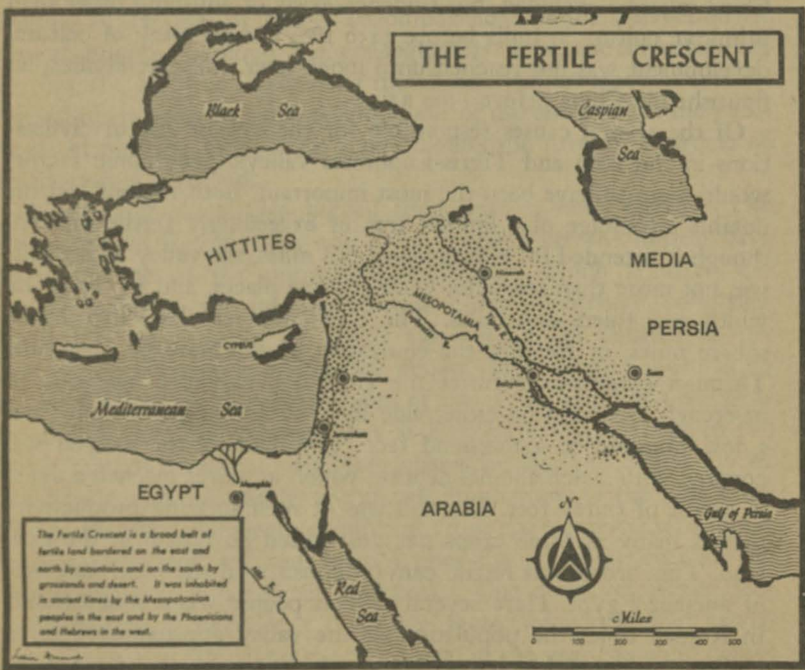
The adversity theory of Arnold J. Toynbee

The most recent hypothesis of the origin of civilizations is the adversity theory of the distinguished British historian, Arnold J. Toynbee. According to this theory, conditions of hardship or adversity are the real causes which have brought into existence superior cultures. Such conditions constitute a challenge which not only stimulates men to try to overcome it but generates additional energy for new achievements. The challenge may take the form of a desert, a jungle area, rugged topography, or a grudging soil. The Hebrews and Arabs were challenged by the first, the Indians of the Andean Highland by the last. The challenge may also take the form of defeat in war or even enslavement. Thus the Carthaginians, as a result of defeat in the First Punic War, were stimulated to conquer a new empire in Spain; while centuries later, Oriental captives enslaved by the Romans strengthened and propagated their religious heritage until Rome herself succumbed to it. In general it is true that the greater the challenge, the greater the achievement; nevertheless, there are limits. The challenge must not be too severe, else it will deal a crushing blow to all who attempt to meet it. Such environments as Greenland, Labrador, and Tierra del Fuego have climate and soil conditions so absolutely bleak and inhospitable that they could never give birth to civilizations.

A number of factors must be taken into account in explaining the origin of civilizations

The majority of historians believe that the genesis of civilizations cannot be explained except on the basis of a complex of causes. Not any one factor, but a combination of several must be taken into account. Among these factors they place uppermost the geographic and economic elements of favorable climate, fertile soil, access to good harbors, and an abundance of mineral resources. They also accord a high place to opportunities for interchange of ideas with

other peoples of a comparable level of advancement. Civilizations do not develop in isolated corners of the world. The backwardness of Australia, New Zealand, and South Africa before the coming of Europeans was probably due to this cause. These sections were favorably situated so far as climate and resources were concerned, but they were too remote to be affected by the stimulus of progress elsewhere. It is common also for historians to emphasize the concentration of population in limited areas and the invention of new skills and processes, such as pictographic writing and the smelting of metals, as factors in the origin of high cultures. Historians also recognize the importance of religion as an influence in the transition from primitive to civilized life. The earliest forms of social regulation were probably for religious purposes. Religion provided the oldest law codes and systems of morality and perhaps also the foundations of philosophy and science. Priests constituted the most ancient class of educated men, and there is reason to believe that it was they who invented the first systems of writing.



3. Why the Earliest Civilizations Began Where They Did

Which of the great civilizations of antiquity was the oldest is still a sharply debated question. The judgment of many scholars inclines toward the Egyptian, though a respectable body of au-

thority supports the claims of the Tigris-Euphrates valley. Still other experts prefer Elam, a region lying east of the Tigris-Euphrates valley and bordering on the Persian Gulf. While the opinion of no competent scholar is to be brushed lightly aside, there is nevertheless stronger warrant for believing that the Nile and Tigris-Euphrates valleys were the homes of the oldest historic cultures. These two areas were geographically the most favored sections in the general region of the so-called Fertile Crescent.[1] Here larger numbers of artifacts of undoubted antiquity have been found than in any other sections of the Near Orient. Furthermore, progress in the arts and sciences had reached unparalleled heights in both of these areas as early as 3000 B.C., when most of the rest of the world was steeped in ignorance. If the foundations of this progress were really laid elsewhere, it seems strange that they should have disappeared, although of course there is no telling what the spade of the archaeologist may uncover in the future. The possibility that the world's earliest civilizations may have originated in India or China must be excluded. No evidence exists of anything other than primitive culture in India before 3250 B.C., and the peak of cultural development was not reached until much later. No true civilization flourished in China before 1500 B.C.

The Nile and the Tigris-Euphrates valleys probably the centers of the oldest civilizations

Of the several causes responsible for the earliest rise of civilizations in the Nile and Tigris-Euphrates valleys, geographic factors would seem to have been the most important. Both regions had the notable advantage of a limited area of exceedingly fertile soil. Although it extended for a distance of 750 miles, the valley of the Nile was not more than ten miles wide in some places, and its maximum width was thirty-one miles. The total area was less than 10,000 square miles, or roughly the equivalent of the State of Maryland. Through countless centuries the river had carved a vast canyon or trench, bounded on either side by cliffs ranging in height from a few hundred to a thousand feet. The floor of the canyon was covered with a rich alluvial deposit, which in places reached a depth in excess of thirty feet. The soil was of such amazing productivity that as many as three crops per year could be raised on the same land. This broad and fertile canyon constituted the cultivable area of ancient Egypt. Here several million people were concentrated. In Roman times the population of the valley approximated seven million, and probably it was not much smaller in the days of the Pharaohs. Beyond the cliffs there was nothing but desert—the Libyan desert on the west and the Arabian on the east. In the ancient Egyptian language "highlander" was synonymous with foreigner. To "go up" was the equivalent of going abroad, while to "descend"

A limited area of fertile soil in the Nile valley

[1] The Fertile Crescent is that wide belt of productive land which extends northwestward from the Persian Gulf and then down the Mediterranean coast almost to Egypt. It forms a semicircle around the northern part of the Arabian desert.

was the popular expression for returning home from the alien world.

In the Tigris-Euphrates valley similar conditions prevailed. As in Egypt, the rivers provided excellent facilities for inland transportation and were alive with fish and waterfowl for a plentiful supply of protein food. The distance between the Tigris and Euphrates rivers at one point was less than twenty miles, while nowhere in the lower valley did it exceed forty-five miles. Since the surrounding country was desert, the people were kept from scattering over too great an expanse of territory. The result, as in Egypt, was the welding of the inhabitants into a compact society, under conditions that facilitated a ready interchange of ideas and discoveries. As the population increased, the need for agencies of social control became ever more urgent. Numbered among such agencies were government, schools, legal and moral codes, and institutions for the production and distribution of wealth. At the same time conditions of living became more complex and artificial and necessitated the keeping of records of things accomplished and the perfection of new techniques. Among the consequences were the invention of writing, the practice of smelting metals, the performance of mathematical operations, and the development of astronomy and the rudiments of physics. With these achievements the first great ordeal of civilization was passed.

A similar condition in Mesopotamia

Climatic influences also played their part in both regions. The atmosphere of Egypt is dry and invigorating. Even the hottest days produce none of the oppressive discomfort which is often experienced during the summer seasons in more northern countries. The mean temperature in winter varies from 56 degrees in the Delta to 66 degrees in the valley above. The summer mean is 83 degrees and an occasional maximum of 122 is reached, but the nights are always cool and the humidity is extremely low. Except in the Delta, rainfall occurs in negligible quantities, but the deficiency of moisture is counteracted by the annual inundations of the Nile from July to October. Also very significant from the historical standpoint is the total absence of malaria in Upper Egypt, while even in the coastal region it is practically unknown. The direction of the prevailing winds is likewise a favorable factor of more than trivial importance. For more than three-quarters of the year the wind comes from the north, blowing in opposition to the force of the Nile current. The effect of this is to simplify immensely the problem of transportation. Upstream traffic, with the propulsion of the wind to counteract the force of the river, presents no greater difficulty than downstream traffic. This factor in ancient times must have been of enormous advantage in promoting communication among a numerous people, some of whom were separated by hundreds of miles.

Climatic advantages in Egypt

Climatic conditions in Mesopotamia do not seem to have been

quite so favorable as in Egypt. The summer heat is more relentless: the humidity is somewhat higher; and tropical diseases take their toll. Nevertheless, the torrid winds from the Indian Ocean, while enervating to human beings, blow over the valley at just the right season to bring the fruit of the date palm to a full ripeness. More than anything else the excellent yield of dates, the dietary staple of the Orient, encouraged the settlement of large numbers of people in the valley of the two rivers. Finally, the melting of the snows in the mountains of the north produced an annual flooding of the Babylonian plain similar to that in Egypt. The effect was to enrich the soil with moisture and to cover it over with a layer of mud of unusual fertility.

Climatic influences in Mesopotamia

Most significant of all of the geographic influences, however, was the fact that the scanty rainfall in both regions provided a spur to initiative and inventive skill. In spite of the yearly floods of the rivers there was insufficient moisture left in the soil to produce abundant harvests. A few weeks after the waters had receded, the earth was baked to a stony hardness. Irrigation was accordingly necessary if full advantage was to be taken of the richness of the soil. As a result, in both Egypt and Mesopotamia elaborate systems of dams and irrigation canals were constructed as long ago as five thousand years. The mathematical skill, engineering ability, and social co-operation necessary for the development of these projects were available for other uses and so fostered the achievement of civilization.

The importance of scanty rainfall as a spur to initiative

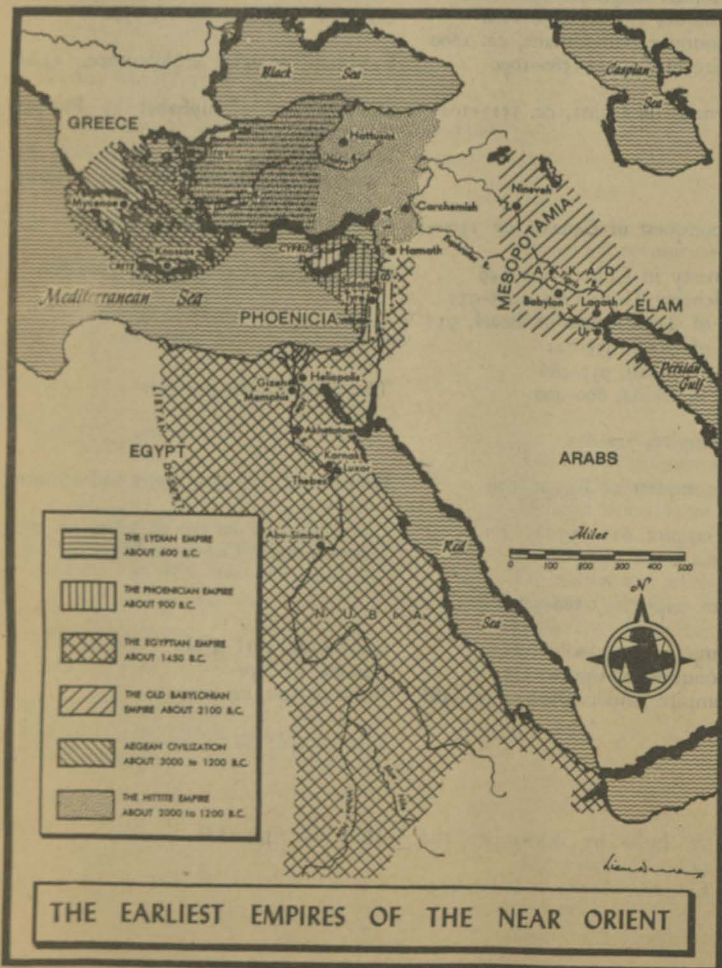
The question remains to be answered, which of the two civilizations, the Egyptian or the Mesopotamian, was the older? This question thus far has defied a satisfactory answer. It is possible to present various facts which seem to suggest the priority of Egypt. Most important of all, the dwellers in the Nile valley enjoyed geographic advantages which were denied to the natives of Mesopotamia: a less enervating atmosphere, a climate comparatively free from disease, and the availability of metals and good building stone. Egypt, moreover, was well protected from invasion and from intermixture with more backward peoples. On the east and west were trackless deserts, on the north was a harborless coast line, and on the south the rocky barriers of a series of cataracts prevented the inroads of African savages. Only at the two northern corners could the valley be penetrated easily. By contrast, Mesopotamia was relatively unprotected. Not one of its boundaries afforded any appreciable degree of security. It stood as a constant temptation to the hungry hordes of nomads in the surrounding mountains and deserts. As a consequence, the progress of cultural evolution was subject to frequent interruptions by the invasions of pillaging tribes.

Evidence for the priority of Egypt

Until recently most historians appeared to take it for granted that the Egyptian civilization was the older. They based their assumption upon the conclusions of two of the world's most re-

nowned Egyptologists, James H. Breasted and Alexandre Moret. Between the two world wars of the twentieth century, however, facts were unearthed which seemed to prove a substantial Mesopotamian influence in the Nile valley as early as 3500 B.C. This influence was exemplified by the use of cylinder seals, methods of building construction, art motifs, and elements of a system of writing of undoubted Mesopotamian origin. That such achievements could have radiated into Egypt from the Tigris-Euphrates valley at so early a date indicated beyond doubt that the Mesopotamian civilization was one of vast antiquity. It did not necessarily prove, though, that it was older than the Egyptian. For the achievements mentioned were not taken over and copied slavishly. Instead, the Egyptians modified them radically to suit their own culture pattern. On the basis of this evidence, it would seem that the only conclusion which can be safely drawn is that both civilizations were very old, and that for the most part they developed concurrently.

Uncertainty as to which civilization was older



THE EARLIEST EMPIRES OF THE NEAR ORIENT

ANCIENT CIVILIZATIONS OF

	Political	Cultural
4000— B.C.	Rule of the Sumerians in Mesopotamia, *ca.* 4000–2000	Solar calendar in Egypt, *ca.* 4000
	Pre-dynastic period in Egypt, *ca.* 4000–3200	Egyptian hieroglyphic writing, *ca.* 3500
		Development of irrigation, mathematics, rudimentary astronomy in Egypt and Mesopotamia, *ca.* 3500–2500
	Old Kingdom in Egypt, *ca.* 3200–2300	
		Cuneiform writing, *ca.* 3200
3000— B.C.	Aegean civilization, *ca.* 3000–1000	Invention of principle of alphabet in Egypt, *ca.* 3000
		Construction of great pyramids in Egypt, *ca.* 2700
		Philosophy in Egypt, *ca.* 2500
	Middle Kingdom in Egypt, 2100–1788	
2000— B.C.	Aryan invasions of India, 2000–1500	Code of Dungi, *ca.* 2000
	Hittite empire, 2000–1200	
	Old Babylonian kingdom, 1900–1600	
	Hyksos conquer Egypt, 1750–1580	Code of Hammurabi, *ca.* 1790
	Kassites conquer Babylonians, *ca.* 1600	
	The Empire in Egypt, 1580–1090	Egyptian temple architecture, 1580–1090
1500— B.C.	Shang Dynasty in China, *ca.* 1523–1027	Development of alphabet by Phoenicians, *ca.* 1500
		Invention of decimal system and discovery of principle of zero in India, 1500–1000
	Hebrew conquest of Canaan, *ca.* 1300–900	Realistic sculpture of Assyrians, 1300–600
1000— B.C.	Chou Dynasty in China, 1027–249	Composition of the *Vedas*, 1200–800
	United Hebrew Monarchy, 1025–935	
	Secession of Ten Tribes of Israel, 935	
	Kingdom of Israel, 935–722	
	Kingdom of Judah, 935–586	
	Feudalism in China, 800–400	The *Upanishads*, 800–600
	Assyrian empire, 722–612	
	Assyrian conquest of Egypt, 670	Division of day into hours and minutes, *ca.* 600
	Chaldean empire, 612–539	Calculation of length of year, *ca.* 600
		Deuteronomic Code, *ca.* 600
	Babylonian captivity, 586–539	
	Persian empire, 559–330	Confucius, 551?–479?
	Persian conquest of Egypt, 525	Lao-tse, *ca.* 550
500— B.C.	Persian empire under Darius, 521–486	Book of Job, *ca.* 500
		Mo Ti, 468?–382?
	Invasion of India by Alexander the Great, 327–326	Mencius, 373?–288?
	Reign of Emperor Asoka in India, 273–232	

EAST AND WEST *Dates are B.C. unless given as A.D.*

Economic	Religious
	Creation and Flood epics in Mesopotamia, *ca.* 4000
Development of serfdom in Mesopotamia and in Egypt, *ca.* 3500	Egyptian sun worship, *ca.* 3500
	Ethical religion in Egypt, *ca.* 3000
	Egyptian belief in personal immortality, *ca.* 2500
Large-scale industry in Egypt and Crete, *ca.* 2000	
	Demon worship and witchcraft in Babylonia, *ca.* 1900
Slavery in Egypt, *ca.* 1580	
Introduction of use of iron by Hittites, *ca.* 1500	
	Religious revolution of Ikhnaton, 1375
World trade of Phoenicians, *ca.* 1000–500 Rise of caste system in India, 1000–500	Hebrew worship of Yahweh, *ca.* 1000
Slavery in Assyria, *ca.* 750	
	Ten Commandments, *ca.* 700 Prophetic Revolution, 700–500 Hebrew doctrine of universal monotheism, *ca.* 600
Invention of coinage by Lydians, *ca.* 600 World trade of Chaldeans, 600–500	Astral religion of Chaldeans, 600–500 Divination and astrology, 600–500 Zoroastrianism, *ca.* 600–300 Founding of Jainism in India, 599–527 Babylonian Captivity of Jews, 586–539 Gautama Buddha, *ca.* 563–483
Royal Road of Persians, *ca.* 500 Use of iron in China, *ca.* 500 Development of coinage in China, *ca.* 400	
	Mithraism, *ca.* 300 B.C.–275 A.D.
	Gnosticism, 100 B.C.–100 A.D. Rise of Christianity, *ca.* 25 A.D.

CHAPTER 3 The Egyptian Civilization

1. Egyptian Intellectual Achievements

The general character of Egyptian philosophy

I. PHILOSOPHY The philosophy of ancient Egypt was chiefly ethical and political, although traces of broader philosophic conceptions are occasionally to be found. The idea that the universe is controlled by mind or intelligence, for example, is a notion that appeared from time to time in the writings of priests and sages. It was first expressed in an inscription known as the *Memphite Drama*, dating from the end of the fourth millennium, and it was revived by Ikhnaton two thousand years later. This idea is so far removed from ordinary anthropomorphic beliefs of ancient peoples that it may seem surprising to find it developed by one of the earliest civilizations; but such was the case. Other philosophic ideas of the ancient Egyptians included the conception of an eternal universe, the notion of constantly recurring cycles of events, and the doctrine of natural cause and effect.

The earliest ethical philosophy

The earliest examples of ethical philosophy are contained in the *Maxims* of Ptahhotep, who served as vizier under one of the Pharaohs of the Fifth Dynasty about 2500 B.C. The work consists of some forty paragraphs of sage advice left by the vizier for the instruction of his son. About half of them are aphorisms of practical wisdom intended for the guidance of the young man in the pursuit of worldly success. Others, however, inculcate morality of a very high order. The son is enjoined to be gracious, tolerant, kindly, and cheerful, but above all to be righteous and just, even to the sacrifice of his own advantage, "the power of righteousness is that it endures." The author also counsels the avoidance of greed, sensuality, and pride and urges moderation and restraint. Elementary though these maxims are, they are nevertheless highly significant, for they are the first expressions of moral idealism in all the world's literature.

The appearance of disillusionment and skepticism

During the Middle Kingdom ethical philosophy displayed a more sophisticated trend. Indeed, its most prominent characteristics were attitudes of pessimism and disillusionment. One reason was that the ancient faith in the religion of Re had broken down. Men no longer believed that preserving the material remains of the Pharaoh would insure the immortality of the nation. Another was that the collapse of the united kingdom and the prevalence of social disorder and foreign invasion produced a feeling of insecurity and hopelessness. Above all the growth of intellectual maturity made the older conceptions of life and the world appear naïve and groundless. The consequence was a tendency toward the opposite extreme of believing in nothing.

A characteristic example of the new philosophic trend was the *Song of the Harp-Player*, which one of the Pharaohs of the Eleventh Dynasty had engraved on the wall of his tomb-chapel about 2100 B.C. It expresses a philosophy of complete skepticism regarding an existence in the after-world: "None cometh from thence that he may tell us how they fare." The gods are not recognized, except that Re is conceived as a blind, impersonal force. No importance is attached to the traditional rewards of virtue and effort; fame, riches, and power are empty delusions. Death is the common fate of Pharaoh and servant alike, and no one knows the day or the hour of its coming. The logical course for man to pursue is therefore to follow desire, to seek his pleasure while he may. But self-indulgence is not enough. One should also strive to gain a good name, by giving "bread to him who hath no field," and by other benevolent works.

The Song of the Harp-Player

The first of a series of Egyptian philosophers whose interests were predominantly political was a priest of Heliopolis who lived during the years that followed the collapse of the Old Kingdom. His name (Khekheperre-soneb) is of such formidable length that he is generally referred to simply as the Priest of Heliopolis. He was the author of the earliest arraignment of society and the first indictment of the upper classes for their injustice to the poor. "The poor man," he declared, "has no strength to save himself from him that is stronger than he." Misery reigns throughout the land. Those who are born to lead are degenerate and cowardly. Society itself is corrupt and complacent. The author recommended no specific reforms, but, as Breasted suggests, many of his reflections would be appropriate in the writings of social critics of our own day.

Political philosophy

With the accession of the Eleventh Dynasty about 2100 B.C., Egypt returned to a semblance of order and prosperity. It was natural that the political philosophy of the time should reflect the welcome change. The most famous specimen of this philosophy is a work which has been given the title of the *Plea of the Eloquent Peasant*. Its authorship is unknown, but it was probably written at the behest of an intelligent Pharaoh who wanted to inculcate high standards of official morality in his subordinates and impress the people with the justice of his rule. It is composed in narrative form and relates the story of a peasant who has been robbed by an unscrupulous official. The victim appeals to the official's superiors, who, at the instance of the Pharaoh, encourage him to unburden himself of all his grievances and to expound his conception of administrative justice. In the course of his pleas the peasant contends that officers of state have the following duties: to act as the father of the orphan, the husband of the widow, and the brother of the forsaken; to ward off the robber and protect the wretched; to execute punishment upon whom it is due; to judge impartially and to speak no falsehood; and to promote such an order of harmony

The Plea of the Eloquent Peasant

and prosperity that no one may suffer from hunger or cold or thirst. Few nobler conceptions of the functions of rulers have ever been set forth by political philosophers. We are not to suppose that the sentiments expressed were actually those of the peasant. The story is fictitious. The philosophy it contains reflects the ideals of an enlightened Pharaoh.

The character of Egyptian science; astronomy

II. SCIENCE The branches of science which first absorbed the attention of the Egyptians were astronomy and mathematics. Both were developed for practical ends—to compute the time of the Nile inundations, to lay out the plans for pyramids and temples, and to solve the intricate problems of irrigation and public control of economic functions. The Egyptians were not pure scientists; they had little interest in the nature of the physical universe as such—a fact which probably accounts for their failure to advance very far in the science of astronomy. They perfected a solar calendar, as we have already learned, mapped the heavens, identified the principal fixed stars, and achieved some success in determining accurately the positions of stellar bodies. Nearly all of these accomplishments were made in the pre-dynastic period and in the Old Kingdom. In later times the interest in astronomy waned.

Achievements in mathematics

The science of mathematics was more highly developed. The Egyptians laid the foundations for at least two of the common mathematical subjects—arithmetic and geometry. They devised the arithmetical operations of addition, subtraction, and division, although they never discovered how to multiply except through a series of additions. They invented the decimal system, but they had no symbol for zero. Fractions caused them some difficulty: all those with a numerator greater than one had to be broken down into a series, each with *one* as the numerator, before they could be used in mathematical calculations. The only exception was the fraction two-thirds, which the scribes had learned to use as it stood. The Egyptians also achieved a surprising degree of skill in mensuration, computing with accuracy the areas of triangles, rectangles, and hexagons. The ratio of the circumference of a circle to its diameter they calculated to be 3.16. They learned how to compute the volume of the pyramid and the cylinder, and even the volume of the hemisphere.

Medicine

The third branch of science in which the Egyptians did some remarkable work was medicine, although progress was slow until the age of the Middle Kingdom. Early medical practice was conservative and profusely corrupted by superstition, but a document dating from about 1700 B.C. reveals a fairly adequate conception of scientific diagnosis and treatment. Egyptian physicians were frequently specialists: some were oculists; others were dentists, surgeons, specialists in diseases of the stomach, and so on. In the course of their work they made many discoveries of lasting value.

They recognized the importance of the heart and had some appreciation of the significance of the pulse. They acquired a degree of skill in the treatment of fractures and performed simple operations. Unlike some peoples of later date they ascribed disease to natural causes. They discovered the value of cathartics, noted the curative properties of numerous drugs, and compiled the first *materia medica,* or catalogue of medicines. Many of their remedies, both scientific and magical, were carried into Europe by the Greeks and are still employed by the peasantry of isolated regions.

Other scientific accomplishments

In other scientific fields the Egyptians contributed little. Although they achieved feats which rival modern engineering, they possessed but the scantiest knowledge of physics. They knew the principle of the inclined plane, but they were ignorant of the pulley. To their credit also must be assigned considerable progress in metallurgy, the invention of the sundial, and the making of paper and glass. With all their deficiencies as pure scientists, they really equaled the Romans in actual accomplishment and went far ahead of anything done by the Hebrews and Persians.

The hieroglyphic system

III. WRITING AND LITERATURE The Egyptians developed their first form of writing during the pre-dynastic period. This system, known as the *hieroglyphic*, from the Greek words meaning sacred carving, was originally composed of pictographic signs denoting concrete objects. Gradually certain of these signs were conventionalized and used to represent abstract concepts. Other characters were introduced to designate separate syllables which could be combined to form words. Finally, twenty-four symbols, each representing a single consonant sound of the human voice, were added early in the Old Kingdom. Thus the hieroglyphic system of writing had come to include at an early date three separate types of characters, the pictographic, syllabic, and alphabetic.

The principle of the alphabet

The ultimate step in this evolution of writing would have been the complete separation of the alphabetic from the non-alphabetic characters and the exclusive use of the former in written communication. The Egyptians were reluctant to take this step. Their traditions of conservatism impelled them to follow old habits. Although they made frequent use of the consonant signs, they did not commonly employ them as an independent system of writing. It was left for the Phoenicians to do this some 1500 years later. Nevertheless, the Egyptians must be credited with the invention of the principle of the alphabet. It was they who first perceived the value of single symbols for the individual sounds of the human voice. The Phoenicians merely copied this principle, based their own system of writing upon it, and diffused the idea among neighboring nations. In the ultimate sense it is therefore true that the Egyptian alphabet was the parent of every other that has ever been used in the Western world. The Egyptians also devised two other systems of

writing in addition to the hieroglyphic: the *hieratic*, which was a cursive or running hand employed for business purposes; and the *demotic*, which was a simpler and more popular form of hieratic.

Egyptian religious literature

Egyptian literature was largely philosophical and religious. The former type has already been discussed. By far the best specimens of the latter were the *Memphite Drama*, the *Royal Sun Hymn* of Ikhnaton, and the hymns of personal piety which have survived from the period of the Empire. The *Memphite Drama*, written about 3000 B.C., was a theological dialogue in which various gods discoursed on the doctrines of the solar religion. The object of the work was apparently to promote the national worship of the sun god Re. Its pervading theme was the idea that Re was the arbiter of human destiny, the author of good, and the giver of life to the "peaceful" and of death to the "guilty." The *Royal Hymn* of Ikhnaton, composed by the great reforming Pharaoh of the fourteenth century B.C., was a stately ode in praise of the majesty, providence, and justice of Aton, "the sole God, beside whom there is no other." It was the supreme embodiment of the Egyptian conception of universal monotheism.

The hymns of personal piety

Literature of a deeper emotional quality was exemplified by the hymns of personal piety, written during the two or three hundred years that followed the death of Ikhnaton. They likewise avow a belief in one God, but they call him by the more ancient name of Amon, and celebrate his loving kindness rather than his splendor and majesty. He is acclaimed as the "Lord of sweetness who giveth breath to every one he loveth" and bestows his tender care upon his humblest creatures. He is merciful, wise, and just, and forgives those who call upon his name. "Punish me not for my many sins" is a common supplication addressed to him. The following is a typical excerpt from one of these hymns:

> Thou, O Amon, art the lord of the silent
> Who cometh at the cry of the poor.
> When I cry to thee in my affliction,
> Then thou comest and savest me.
> That thou mayest give breath to him who is bowed down,
> And mayest save me lying in bondage.

Popular literature

In addition to the philosophical and religious works, there were many writings of a lighter sort. Folk songs of the common people at their labors, stories of travel and adventure, odes of victory in battle, and charming love lyrics that suggest the style and imagery of the Biblical Song of Solomon are among the several types which have come down to us. Most famous of the individual compositions was the *Tale of the Two Brothers*, considered by some authorities as the source of the Old Testament narrative of Joseph and Poti-

phar's wife. The popular literature of Egypt is especially significant for its influence, since much of its content was copied by later Oriental peoples, and for the light which it throws upon the society of the common man. It portrays the average Egyptian in his prevailing moods of cheerful resignation and joy in the simpler pleasures. It reveals a society comparatively free from the grosser forms of tyranny and ignorance. We are given the impression of a standard of living that was not indescribably poor and mean, in which the middle classes, at least, could acquire the rudiments of an education and thereby escape from a life of drudgery and pain.

2. *The Meaning of Egyptian Art*

The character of Egyptian art

No single interpretation will suffice to explain the meaning of Egyptian art. Its purposes were varied, and the ideals it was supposed to represent changed with the shifting tendencies of political and social history. In general, it expressed the aspirations of a collectivized national life. It was not art for art's sake, nor did it serve to convey the individual's reactions to the problems of his personal world. Yet there were times when the conventions of a communal society were broken down, and the supremacy was accorded to a spontaneous individual art that sensed the beauty of the flower or caught the radiant idealism of a youthful face. Seldom was the Egyptian genius for faithful reproduction of nature entirely suppressed. Even the rigid formalism of the official architecture was commonly relieved by touches of naturalism—columns in imitation of palm trunks, lotus blossom capitals, and occasional statues of Pharaohs which were not conventionalized types but true individual portraits.

Architecture

In most civilizations where the interests of society are exalted above those of its members, architecture is at once the most typical and the most highly developed of the arts. Egypt was no exception. Whether in the Old Kingdom, Middle Kingdom, or Empire it was the problems of building construction which absorbed the talent of the artist. Although painting and sculpture were by no means primitive, they nevertheless had as their primary function the embellishment of temples. Only at times did they rise to the status of independent arts.

The pyramids

The characteristic examples of Old Kingdom architecture were the pyramids, the first of which were built at least as early as 2700 B.C. An amazing amount of labor and skill were expended in their construction. The Greek historian Herodotus estimated that 100,000 men must have been employed for twenty years to complete the single pyramid of Khufu at Gizeh. Its total height exceeds 480 feet, and the more than two million limestone blocks it contains are fitted together with a precision which few modern masons could duplicate. Each of the blocks weighs about two and a half tons. They



The Great Sphinx and Pyramids at Gizeh. For the Egyptian the sphinx, with a human head on the body of a lion, probably represented an attempt to endow the Pharaoh with the strength and courage of the lion.

were evidently hewn out of rock cliffs with drills and wedges and then dragged up earthen ramps by gangs of men and pried into place.

Significance of the pyramids

The significance of the pyramids is not easy to comprehend. They may have been intended for the economic purpose of providing employment opportunities. Such a theory would assume that the population had increased to overcrowding, and that the resources of agriculture, mining, industry, and commerce were no longer adequate to provide a livelihood for all the people. But whatever the validity of this theory, it is hardly a complete explanation. The pyramids also had a political and religious significance. Their construction was an act of faith, the expression of an ambition to endow the state with permanence and stability. As indestructible tombs of the rulers they were believed to guarantee immortality to the people, for the Pharaoh was the embodiment of the national life. It is possible also that they were intended to serve as symbols of sun worship. As the tallest structures in Egypt they would catch the first light of the rising sun and reflect it to the valley below.

The temples

During the Middle Kingdom and the Empire the temple displaced the pyramid as the leading architectural form. No longer was preservation of the material remains of the Pharaoh considered so important, nor was there quite the same credulous faith in the identification of the ruler with the nation. On the other hand, there was the same interest in structures of massive proportions which would express the national strength and the belief in the eternity of the culture. But these structures were not tombs. The most famous examples of them were the great temples at Karnak and Luxor, built during the period of the Empire. Many of their gigantic, richly carved columns still stand as silent witnesses of a splendid architectural talent.

Egyptian temples were characterized first of all by massive size. The temple at Karnak, with a length of about 1300 feet, covered the largest area of any religious edifice ever built. Its central hall alone could contain almost any of the Gothic cathedrals of Europe. But even its enormous bulk was not enough to satisfy the passion for grandeur. Artificial devices were employed to make the building seem larger than it really was. As an example, the height of the ceiling was progressively diminished from the entrance toward the rear to create the illusion of a long perspective and therefore of a vast expanse of floor. The columns used in the temples had stupendous proportions. The largest of them were seventy feet high, with diameters in excess of twenty feet. It has been estimated that the capitals which surmounted them could furnish standing room for a hundred men.

Characteristics of temple architecture

The Egyptians deliberately chose to give their temples hugeness of size and solidity of construction. They did not completely sacrifice grace and proportion—much of the decoration was instinct with life, and the design frequently bespoke a high regard for symmetry. But impressions of grandeur and massiveness were quite evidently

The passion for hugeness



Hypostyle Hall in the Temple at Karnak. Hugeness, to express the national strength and belief in eternity, was a dominant feature of Egyptian temple architecture. Note also the deeply incised carvings on the columns.

the vital considerations, especially in the temples of the Empire. Such a conclusion is rendered obvious by the fact that the materials used in temple construction were by no means of a flimsy or insubstantial character. Walls several feet thick and columns of enormous diameter were not made necessary by a choice of materials that were likely to crumble; on the contrary, the Egyptians used nothing but the hardest of stone. We are therefore led to the belief that the real purpose of their building style was to symbolize conceptions of national pride, imperial glory, and the strength and permanence of the state. Many other imperialistic peoples, the Assyrians and the Romans for example, have sought to express the majesty of their

accomplishments in buildings of imposing magnitude. Perhaps the tendency in much modern architecture to identify beauty with hugeness is a reflection of a similar pride in conquest.

Egyptian sculpture

As already mentioned, Egyptian sculpture and painting served primarily as adjuncts to architecture. The former was heavily laden with conventions which restricted its style and meaning. Statues of Pharaohs were commonly of colossal size. Those produced during the Empire ranged in height from seventy-five to ninety feet. Some of them were colored to resemble life, and the eyes were frequently inlaid with rock crystal. The figures were nearly always rigid, with the arms folded across the chest or fixed to the sides of the body and with the eyes staring straight to the front. Countenances were generally represented as impassive, utterly devoid of emotional expression. Anatomical distortion was frequently practiced: the natural length of the thighs might be increased, the squareness of the shoulders accentuated, or all of the fingers of the hand made equal in length. A familiar example of non-naturalistic sculpture was the Sphinx. This represented the head of a Pharaoh on the body of a lion. The purpose was probably to symbolize the notion that the Pharaoh possessed the lion's qualities of strength and courage. The figures of sculpture in relief were even less in conformity with nature. The



Colossus of Ramses II (XIXth Dynasty). Though almost modern in its sharp, cubist lines, this statue is typically Egyptian in the imperturbable expression of the face and the conventionalized treatment of shoulders, arms, and legs.



Relief Portrait of Seti I (XIXth Dynasty). The face is almost the only individualized part of this portrait. Observe the frontality of the shoulders, the conventionalized position of the feet, and the equal length of the fingers.

head was presented in profile, with the eye fullface; the torso was shown in the frontal position, while the legs were rendered in profile. Such were the general tendencies, but it should be noted that they were not universal. Occasionally the artist succeeded in a partial defiance of conventions, as is evidenced by the production of some highly individual likenesses of the later Pharaohs. The most notable example was a beautiful limestone head of Ikhnaton, found some years ago at Amarna, which clearly portrayed the quality of dreamy mysticism inherent in the soul of the great reformer.

The meaning of Egyptian sculpture

The meaning of Egyptian sculpture is not hard to perceive. The colossal size of the statues of Pharaohs was doubtless intended to symbolize their power and the power of the state they represented. It is significant that the size of these statues increased as the empire expanded and the government became more absolute. The conventions of rigidity and impassiveness, which dominated not only the statues of rulers but even the sculptures of less formal description such as the figure of *The Seated Scribe*, were meant to express the timelessness and stability of the national life. Here was a nation which, according to the ideal, was not to be torn loose from its moorings by the uncertain mutations of fortune but was to remain fixed and imperturbable. The portraits of its chief men consequently must betray no anxiety, fear, or triumph, but an unvarying calmness throughout the ages. In similar fashion, the anatomical distortion can probably be interpreted as a deliberate attempt to express some national ideal. There is certainly no reason to believe that it was practiced through ignorance of the laws of proportion or inability to copy the natural form. Very likely it was intended as a denial of mortality. The eternal existence of the people might very easily be thought to depend upon investing their leaders with attributes which would serve to protest their death as ordinary human beings. The most eloquent device for this purpose was representation of the body of a Pharaoh with the head of a god, but the other examples of non-naturalistic portrayal probably had a similar object.

Painting

Though most of Egyptian painting has perished, that which survives is largely free from political and religious conventions. Certainly it was not dominated by them to the extent that architecture and sculpture were. The reason is perhaps to be found in the fact that painting developed late and did not have time to become weighted down with a mass of traditions. Religion did exert its influence, but in a positive manner. The best paintings were those created during the reign of Ikhnaton and immediately after. The gospel of the reforming king, with its reverence for nature as the handiwork of God, fostered a revival of naturalism in art which was particularly evident in painting. As a result, the murals of this period exhibit a decided talent for representation of the striking phenomena of the world of experience. They have particular merit as examples of the portrayal of movement. They caught the instant



Fishing and Fowling: Wall Painting Thebes, XVIIIth Dynasty. Most of the women appear to belong to the prosperous classes, while the simple garb and insignificant size of the men indicates that they are probably slaves.

action of the wild bull leaping in the swamp, the headlong flight of the frightened stag, and the effortless swimming of ducks in the pond. Even the paintings in the great temple of Luxor made a similar appeal to the senses; the blue ceiling studded with stars and the flowers and trees emblazoned on the columns and walls bore witness to the artist's appreciation of the beauty of his natural environment.

3. The Egyptian Achievement and Its Importance to Us

Egyptian contributions: (1) intellectual and artistic

Few civilizations of ancient times surpassed the Egyptian in importance to the modern world. Even the influence of the Hebrews was not much greater. From the land of the Pharaohs came the germ and the stimulus for numerous intellectual achievements of later centuries. Important elements of philosophy, mathematics, science, and literature had their beginnings there. The Egyptians also developed one of the oldest systems of jurisprudence and political theory. They perfected the achievements of irrigation, engineering, and the making of pottery, glass, and paper. They were one of the first peoples to have any clear conception of art for other than utilitarian purposes, and they originated architectural principles that were destined for extensive use in subsequent history. Notable among these were the column, the colonnade, the lintel, the obelisk, and the clerestory, or low wall with windows looking out upon the roof of the main part of the building.

More significant still were the Egyptian contributions in the fields of religion and individual and social ethics. Aside from the Persians,

the dwellers on the banks of the Nile were the only people of the ancient world to build a national religion around the doctrine of personal immortality. Egyptian priests and sages likewise were the first to preach universal monotheism, the providence of God, forgiveness of sins, and rewards and punishments after death. Finally, Egyptian ethical theory was the source from which various nations derived standards of personal and social morality; for it embraced not only the ordinary prohibitions of lying, theft, and murder, but included also the exalted ideals of justice, benevolence, and the equal rights of all men.

(2) religious and ethical

CHAPTER 4 The Mesopotamian Civilization

1. Sumerian Origins of the Civilization

More than to any other people, the Mesopotamian civilization owed its character to the Sumerians. Much of what used to be ascribed to the Babylonians and Assyrians is now known to have been developed by the nation that preceded them. The system of writing was of Sumerian origin; likewise the religion, the laws, and a great deal of the science and commercial practice. Only in the evolution of government and military tactics and in the development of the arts was the originating talent of the later conquerors particularly manifest.

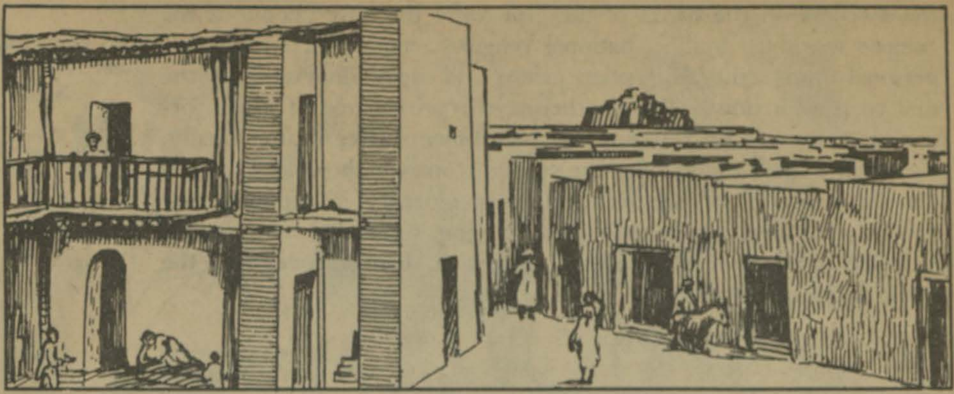
The Sumerians the chief originators of Mesopotamian civilization

Through the greater part of their history the Sumerians lived in a loose confederation of city-states, united only for military purposes. At the head of each was a *patesi*, who combined the functions of chief priest, commander of the army, and superintendent of the irrigation system. Occasionally one of the more ambitious of these rulers would extend his power over a number of cities and assume the title of king. Not until the time of Dungi, about 2000 B.C., however, were all of the Sumerian people united under a single authority of the same nationality as themselves.

The Sumerian political system

The Sumerian economic pattern was relatively simple and permitted a wider scope for individual enterprise than was generally allowed in Egypt. The land was never the exclusive property of the king either in theory or in practice. Neither was trade or industry a monopoly of the government. On the other hand, the masses of the people had little they could call their own. Many of them were serfs, but even those who were technically free were little better off, forced as they were to pay high rents and to labor on the public works. Slavery in the strict sense of the word was not an important

The Sumerian economic pattern



Diorama of a Part of Ur about 2000 B.C. A modern archaeologist's conception. Walls are omitted to show interiors at left.

institution. Most of those referred to as slaves were really serfs, who had mortgaged their persons for debt. They do not appear to have been an especially degraded class. They could own property, work for wages when their master did not need them, and even marry free women. Doubtless the great majority of them were of Sumerian nationality, a fact which helps to explain their rather liberal treatment.

Agriculture

Agriculture was the chief economic pursuit of most of the citizens, and the Sumerians were excellent farmers. By virtue of their knowledge of irrigation they produced amazing crops of cereal grains and subtropical fruits. Since most of the land was divided into large estates held by the rulers, the priests, and the army officers, the average rural citizen was either a tenant farmer or a serf. Commerce was the second most important source of the nation's wealth. A flourishing trade was established with all of the surrounding countries, revolving around the exchange of metals and timber from the north and west for the agricultural products and manufactured goods from the lower valley. Nearly all of the familiar adjuncts of business were highly developed; bills, receipts, notes, and letters of credit were regularly used. Custom required that deals should be confirmed by written agreements, signed by witnesses. Merchants employed salesmen who traveled to distant regions and sold goods on commission. In all major transactions bars or ingots of gold and silver served as money, the standard unit of exchange being the silver shekel, approximately equal in weight to a modern 50-cent piece but with a purchasing power much greater.

Sumerian law

The most distinctive achievement of the Sumerians was their system of law. It was the product of a gradual evolution out of local usage, but it was finally incorporated into a comprehensive code by Dungi after the middle of the third millennium. Only a few fragments of this law have survived in their original form, but the famous code of Hammurabi, the Babylonian king, is now recognized

to have been nothing more than a revision of the code of Dungi. Ultimately this code became the basis of the laws of nearly all of the Semites—Babylonians, Assyrians, Chaldeans, and Hebrews.

The following may be regarded as the essential features of the Sumerian law:

(1) The *lex talionis*, or law of retaliation in kind—"an eye for an eye, a tooth for a tooth, a limb for a limb," etc.

(2) Semi-private administration of justice. It was incumbent upon the victim himself or his family to bring the offender to justice. The court served principally as an umpire in the dispute between the plaintiff and defendant, not as an agency of the state to maintain public security, although constables attached to the court might assist in the execution of the sentence.

(3) Inequality before the law. The code divided the population into three classes: patricians or aristocrats; burghers or commoners; serfs and slaves. Penalties were graded according to the rank of the victim, but also in some cases according to the rank of the offender. The killing or maiming of a patrician was a much more serious offense than a similar crime committed against a burgher or a slave. On the other hand, when a patrician was the offender he was punished *more severely* than a man of inferior status would be for the same crime. The origin of this curious rule was probably to be found in considerations of military discipline. Since the patricians were army officers and therefore the chief defenders of the state, they could not be permitted to give vent to their passions or to indulge in riotous conduct.

(4) Inadequate distinction between accidental and intentional homicide. A person responsible for killing another accidentally did not escape penalty, as he would under modern law, but had to pay a fine to the family of the victim, apparently on the theory that children were the property of their fathers and wives the property of their husbands.

The character of Sumerian religion

Quite as much as their law the religion of the Sumerians illuminates their social attitudes and the character of their culture. They did not succeed in developing a very exalted religion; yet it occupied an important place in their lives. To begin with, it was polytheistic and anthropomorphic. They believed in a number of gods and goddesses, each a distinct personality with human attributes. Shamash, the sun god; Enlil, the lord of the rain and wind; and Ishtar, the goddess of the female principle in nature, were only a few of them. Although the Sumerians had a special deity of the plague in the person of the god Nergal, their religion was really monistic, in the sense that they regarded all of their deities as capable of both good and evil. Shamash, for example, as the god of the sun gave warmth and light for the benefit of man; but he might also send his burning rays to bake the soil and to wither the tender plants before they had time to yield their fruits. Religious dualism, in-

volving a belief in entirely separate divinities of good and evil, did not appear in the Mesopotamian civilization until much later.

A religion for this world, not for the next

The Sumerian religion was a religion for this world exclusively; it offered no hope for a life to come. The after-life was a mere temporary existence in a dreary, shadowy place which later came to be called Sheol. Here the ghosts of the dead lingered for a time, perhaps a generation or so, and then disappeared. No one could look forward to resurrection in another world and a joyous eternal existence as a recompense for the evils of this life; the victory of the grave was complete. In accordance with these beliefs the Sumerians bestowed no particular care upon the bodies of their dead. No mummification was practiced, and no elaborate tombs were built. Corpses were commonly interred beneath the floor of the house without a coffin and with very few articles for the use of the ghost.

A religion neither ethical nor spiritual

Neither spiritual nor ethical content had any place of conspicuous importance in this religion. As we have seen, the gods were not spiritual beings but creatures cast in the human mold, with most of the weaknesses and passions of mortal men. Nor were the purposes of the religion any more spiritual. It provided no blessings in the form of solace, uplift of the soul, or oneness with God. If it benefited man at all, it did so only in the form of material gain—abundant harvests and prosperity in business. Similarly, the doctrines and forms of worship were almost devoid of ethical significance. The religion did not prescribe or enforce standards of morality. The obligations imposed upon the individual were mainly ritualistic. Though the gods were often angry with men and vented their wrath upon them, that wrath was due not to breaches of the divine commandments, but to the failure of men to show proper respect to the deities and to provide for their needs.

The Creation and Flood epics

The true nature of the Sumerian religion is revealed in the famous Creation and Flood epics, which provided the framework for the much later Hebrew stories in the Old Testament. The Creation epic related the magic triumph of the god Marduk over the jealous and cowardly gods who had created him, the formation of the world out of the body of one of his slain rivals, and finally, in order that the gods might be fed, the making of man out of clay and dragon's blood. The whole account was crude and revolting, with nothing in it to appeal to a spiritual or moral sense. Almost as barbarous was the Sumerian version of the Flood. Grown jealous of man, the gods decided to destroy the whole race of mortals by drowning. One of their number, however, betrayed the secret to a favorite inhabitant of the earth, instructing him to build an ark for the salvation of himself and his kind. The flood raged for seven days, until the whole earth was covered with water. Even the gods "crouched like a dog on the wall." Finally the tumult was stilled and the waters subsided. The favored man and his brothers came forth from the ark and offered grateful sacrifice. Hungry from their long deprivation



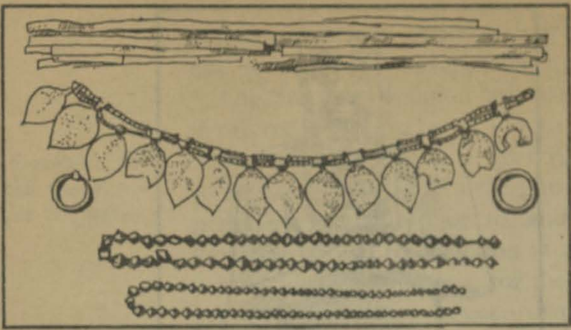
Male Votive Figure, Sumer. This statue of white gypsum, colored with bitumen, shows the conventionalized treatment of hair and beard and the huge, staring eyes common to Mesopotamian art. Observe also the immense thumbs and the fingers of equal length.

of food, the gods "scented the sweet savour, and gathered like flies above the sacrifice," and decided never again to be so foolish as to risk the destruction of man.

Intellectual achievements

In the field of intellectual endeavor the Sumerians achieved no great distinction. They did, however, produce a system of writing which was destined to be used for a thousand years after the downfall of their nation. This was the celebrated *cuneiform* writing, consisting of wedge-shaped characters imprinted on clay tablets with a square-tipped reed. Although at first a pictographic system, it was gradually transformed into an aggregate of syllabic and phonetic signs, some three hundred and fifty in number. No alphabet was ever developed out of it. The Sumerians wrote nothing that could be called philosophy, but they did make some feeble beginnings in science. They discovered the processes of multiplication and division and even the extraction of square and cube root. Their systems of numeration and of weights and measures were duodecimal, with the number sixty as the most common unit. They invented the water clock and the lunar calendar, the latter an inaccurate division of the year into months based upon cycles of the moon. In order to bring it into harmony with the solar year, an extra month had to be added from time to time. Astronomy was little more than astrology, and medicine was a curious compound of herbalism and magic. The repertory of the physician consisted primarily of charms to exorcise the evil spirits which were believed to be the cause of disease.

As artists the Sumerians excelled in metal work, gem carving, and sculpture. They produced some remarkable specimens of naturalistic



Fragments of Jewelry Found at Ur in Two Graves of Ladies-in-Waiting to the Queen. The materials used are gold, carnelian, and lapis lazuli. Dating from 3500–2800 B.C., it is the oldest jewelry in the world.

Sumerian art

art in their weapons, vessels, jewelry, and human and animal representations, which revealed alike a technical skill and a gift of imagination. Evidently religious conventions had not yet imposed any paralyzing influence, and consequently the artist was still free to follow his own impulses. Architecture, on the other hand, was distinctly inferior, probably because of the limitations enforced by the scarcity of good building materials. Since there was no stone in the valley, the architect had to depend upon sun-dried brick. The characteristic Sumerian edifice, extensively copied by their Semitic successors, was the *ziggurat*, a terraced tower set on a platform and surmounted by a shrine. Its construction was massive, its lines were monotonous, and little architectural ingenuity was exhibited in it. The royal tombs and private houses showed more originality. It was in them that the Sumerian inventions of the arch, the vault, and the dome were regularly employed, and the column was used occasionally.

2. *Old Babylonian "Contributions"*

The shortcomings of the Old Babylonians

Although the Old Babylonians were an alien nation, they had lived long enough in close contact with the Sumerians to be influenced profoundly by them. They had no culture of their own worthy of the name when they came into the valley, and in general they simply appropriated what the Sumerians had already developed. With so excellent a foundation to build upon, they should have made remarkable progress; but such was not the case. When they ended their history, the state of civilization in the Tigris-Euphrates valley was no more advanced than when they began.

Changes in the system of law

First among the significant changes which the Old Babylonians made in their cultural inheritance may be mentioned the political and legal. As military conquerors holding in subjection numerous vanquished nations, they found it necessary to establish a consolidated state. Vestiges of the old system of local autonomy were swept away, and the power of the king of Babylon was made supreme. A system of royal taxation was adopted as well as compulsory military service. The system of law was also changed to conform to the new conditions. The list of crimes against the state

was enlarged, and the king's officers assumed a more active role in apprehending and punishing offenders, although it was still impossible for any criminal to be pardoned without the consent of the victim or the victim's family. The severity of penalties was decidedly increased, particularly for crimes involving any suggestion of treason or sedition. Such apparently trivial offenses as "gadding about" and "disorderly conduct of a tavern" were made punishable by death, probably on the assumption that they would be likely to foster disloyal activities. Whereas under the Sumerian law the harboring of fugitive slaves was punishable merely by a fine, the Babylonian law made it a capital crime. According to the Sumerian code, the slave who disputed his master's rights over him was to be sold; the Code of Hammurabi prescribed that he should have his ear cut off. Adultery was also made a capital offense, whereas under the Sumerian law it did not even necessarily result in divorce. In a few particulars the new system of law revealed some improvement. Wives and children sold for debt could not be held in bondage for longer than four years, while a female slave who had borne her master a child could not be sold at all.

Economic development

The Old Babylonian laws also reflect a somewhat more extensive development of business than that which existed in the preceding culture. That those who traded for profit enjoyed a privileged position in society is evidenced by the fact that the commercial provisions of Hammurabi's code were based upon the principle of "Let the buyer beware." The Babylonian rulers did not believe in a regime of free competition, however. Trade, banking, and industry were subject to elaborate regulation by the state. There were laws regarding partnership, storage, and agency; laws respecting deeds, wills, and the taking of interest on money; and a great host of others. For a deal to be negotiated without a written contract or without witnesses was punishable by death. Agriculture, which was still the occupation of a majority of the citizens, did not escape regulation either. The code provided penalties for failure to cultivate a field and for neglect of dikes and canals. Both government ownership and private tenure of land were permitted; but, regardless of the status of the owner, the tenant farmer was required to pay two-thirds of all he produced as rent.

Changes in the religion

Religion at the hands of the Old Babylonians underwent numerous changes both superficial and profound. Deities that had been venerated by the Sumerians were now neglected, and new ones exalted in their stead. Marduk, originally the local god of the town of Babylon, was elevated to the highest position in the pantheon. Ishtar remained the chief goddess. Tammuz, her brother and lover, who had been of no special significance in the Sumerian religion, now became the third most important divinity. His death in the autumn and resurrection in the spring symbolized the death and rebirth of vegetation. But the death and resurrection of the god had more than a symbolic meaning; vaguely at least they were con-

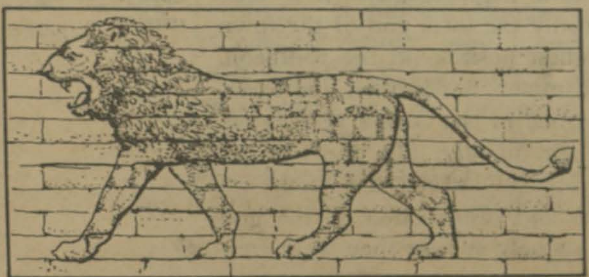
ceived as the real causes of the nature processes themselves, and the god's rites were a form of magic. They carried no spiritual significance, however, conveying no promise of the resurrection of man from the dead or of personal immortality. The Old Babylonians were no more otherworldly in their outlook than the Sumerians.

The increase in superstition

Equally noteworthy was an increase in superstition. Astrology, divination, and other forms of magic took on added significance. A morbid consciousness of sin gradually displaced the essentially amoral attitude of the Sumerians. In addition, an increased emphasis was placed upon the worship of demons. Nergal, the god of the plague, came to be envisaged as a hideous monster seeking every chance to strike down his victims. Hordes of other demons and malevolent spirits lurked in the darkness and rode through the air bringing terror and destruction to all in their path. Against them there was no defense except sacrifices and magic charms. If the Old Babylonians did not invent witchcraft, they were at least the first "civilized" people to magnify it to serious proportions. Their laws invoked the death penalty against it, and there is evidence that the power of witches was widely feared Whether the growth of demonology and witchcraft was due to the increasing unhealthfulness of the climate of the Tigris-Euphrates valley, or to the gloomy mentality of the people themselves, is a question which cannot be answered; but it is probable that the former is the chief explanation.

The decline of intellect and the arts

There seems to be little doubt that intellectually and artistically the Mesopotamian civilization suffered a partial decline during the period of Babylonian rule. This was not the first instance of cultural retrogression in history, but it was one of the most pronounced. Nothing of any importance was added to the scientific discoveries of the Sumerians, and some of them appear to have been neglected or forgotten. Literature showed some improvement over the earlier writings, especially in the famous Gilgamesh epic, a story of the mighty deeds of a supernatural adventurer. Although most of the legends themselves were of Sumerian origin, it was Babylonian poets who wove them into powerful descriptive style. A kind of prototype of the Book of Job, the so-called *Babylonian Job*, was also written in this period. It relates the story of a pious sufferer who is afflicted he knows not why, and it contains some mature reflections on the helplessness of man and the impenetrable mysteries of the universe.



Panel of Glazed Brick, Babylon. Sixth Century B.C. An ornamental relief on a background of earth brown. The lion is in blue, white, and yellow glazes.

As an example of Oriental philosophy it is not without merit. The graphic arts, on the other hand, definitely deteriorated. The Babylonians lacked the creative interest and talent to duplicate the fresh and ingenious carving and engraving of the Sumerians. Moreover, sculpture fell under the domination of religious and political conventions, with the result that originality was stifled.

3. *The Metamorphosis under Assyria*

The evolution of Assyrian supremacy

Of all the peoples of the Mesopotamian area after the time of the Sumerians, the Assyrians went through the most completely independent evolution. For several centuries they had lived a comparatively isolated existence on top of their small plateau in the upper valley of the Tigris. Eventually they came under the influence of the Babylonians, but not until after the course of their own history had been partially fixed. As a consequence, the period of Assyrian supremacy (from about 1300 B.C. to 612 B.C.) had more nearly a peculiar character than any other era of Mesopotamian history.

A nation of warriors

The Assyrians were pre-eminently a nation of warriors; not because they were racially different from any of the other Semites, but because of the special conditions of their own environment. Their situation was strikingly similar to that of the modern Japanese, except that they lived on a plateau instead of on a group of islands. The limited resources of their original home and the constant danger of attack from hostile nations around them forced the development of warlike habits and imperial ambitions. It is therefore not strange that their greed for territory should have known no limits. The more they conquered, the more they felt they had to conquer, in order to protect what they had already gained. Every success excited ambition and riveted the chains of militarism more firmly than ever. Disaster was inevitable.

Features of the Assyrian militarism

The exigencies of war determined the whole character of the Assyrian system. The state was a great military machine. The army commanders were at once the richest and the most powerful class in the country. Not only did they share in the plunder of war, but they were frequently granted huge estates as rewards for victory. At least one of them, Sargon II, dared to usurp the throne. The military establishment itself represented the last word in preparedness. The standing army greatly exceeded in size that of any other nation of the Near Orient. New and improved armaments and techniques of fighting gave to the Assyrian soldiers unparalleled advantages. Iron swords, heavy bows, long lances, battering rams, fortresses on wheels, and metal breastplates, shields, and helmets were only a few examples of their superior equipment.

Terrorism

But swords and spears and engines of war were not their only instruments of combat. As much as anything else the Assyrians depended upon frightfulness as a means of overcoming their enemies.

Upon soldiers captured in battle, and sometimes upon non-combatants as well, they inflicted unspeakable cruelties—skinning them alive, impaling them on stakes, cutting off ears, noses, and sex organs, and then exhibiting the mutilated victims in cages for the benefit of cities that had not yet surrendered. Accounts of these cruelties are not taken from atrocity stories circulated by their enemies; they come from the records of the Assyrians themselves. Their chroniclers boasted of them as evidences of valor, and the people believed in them as guaranties of security and power. It is clear why the Assyrians were the most hated of all the nations of antiquity.

The tragedy of Assyrian militarism

There is much grist for the mill of the pacifist in the military history of Assyria. There has never been a better illustration of the unwisdom of conquest and the folly of brute force. Seldom has the decline of an empire been so swift and so complete; for in spite of her magnificent armaments and her wholesale destruction of her foes, Assyria's period of imperial splendor lasted little more than a century. Nation after nation conspired against her and finally accomplished her downfall. Her enemies took frightful vengeance. The whole land was so thoroughly sacked and the people so completely enslaved or exterminated that it has been difficult to trace any subsequent Assyrian influence upon history. The power and security which military strength was supposed to provide proved a mockery in the end. If Assyria had been utterly defenseless, her fate could not have been worse.

Neglect of the arts of peace

With so complete an absorption in military pursuits, it was inevitable that the Assyrians should have neglected in some measure the arts of peace. Such progress as they did make was largely conditioned by the factors of war. There was no further development of industry and commerce, for the Assyrians scorned such pursuits as beneath the dignity of a soldierly people. As compared with the thousands of business tablets left by the Old Babylonians, only a few hundred have ever been found at Nineveh. The minimum of manufacturing and trade which had to be carried on was left to the Arameans, a people closely related to the Phoenicians and the Hebrews. The Assyrians themselves preferred to derive their living from agriculture. The land system included both public and private holdings. The temples held the largest share of the landed wealth. Although the estates of the crown were likewise extensive, they were constantly being diminished by grants to the army officers. Numerous private citizens were also the owners of freehold estates.

Defects in the economic system

Neither the economic nor the social order was sound. The frequent military campaigns depleted the energies and resources of the nation. In the course of time the army officers became a pampered aristocracy, delegating their duties to their subordinates and devoting themselves to luxurious pleasures. The stabilizing influence of a prosperous and intelligent middle class was precluded by the rule that only foreigners could engage in commercial activities. Yet more

serious was the treatment accorded to the lower classes, the serfs and the slaves. The former comprised the bulk of the rural population. Some of them cultivated definite portions of their master's estates and retained a part of what they produced for themselves. Others were "empty" men, without even a plot to cultivate and dependent on the need for seasonal labor to provide for their means of subsistence. All were extremely poor and were subject to the additional hardships of labor on the public works and compulsory military service. The slaves, who were chiefly an urban working class, were really of two different types: the domestic slaves, who performed household duties and sometimes engaged in business for their masters; and the war captives. The former were not numerous and were allowed a great deal of freedom, even to the extent of owning property. The latter suffered much greater miseries. Bound by heavy shackles, they were compelled to labor to the point of exhaustion in building roads, canals, and palaces.

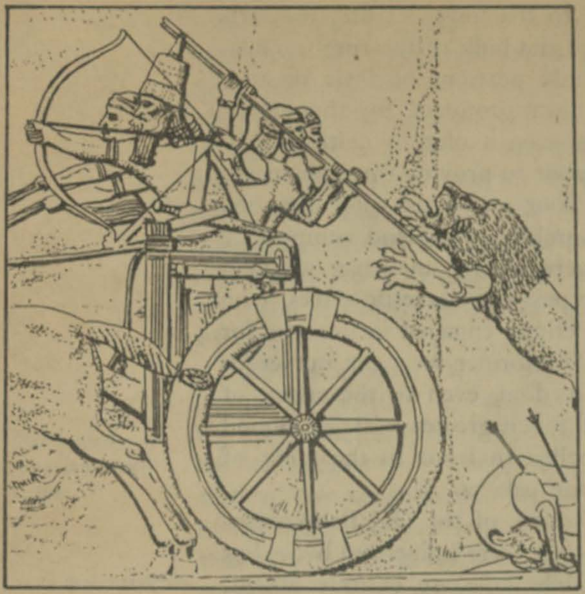
Assyrian law

Whether the Assyrians adopted the law of the Old Babylonians has never been settled. Undoubtedly they were influenced by it, but several of the features of Hammurabi's code are entirely absent. Notable among these are the *lex talionis* and the system of gradation of penalties according to the rank of the victim and the offender. Whereas the Babylonians prescribed the most drastic punishments for crimes suggestive of treason or sedition, the Assyrians reserved theirs for such offenses as abortion and unnatural vice, probably for the military reason of preventing a decline in the birth rate. Another contrast is the more complete subjection of Assyrian women. Wives were treated as chattels of their husbands, the right of divorce was placed entirely in the hands of the male, a plurality of wives was permitted, and all married women were forbidden to appear in public with their faces unveiled. Here, according to Professor Olmstead, was the beginning of the Oriental seclusion of women.[1]

Scientific achievements

That a military nation like the Assyrians should not have taken first rank in intellectual achievement is easily understandable. The atmosphere of a military campaign is not favorable to reflection or disinterested research. Yet the demands of successful campaigning may lead to a certain accumulation of knowledge, for practical problems have to be solved. Under such circumstances the Assyrians accomplished some measure of scientific progress. They appear to have divided the circle into 360 degrees and to have estimated locations on the surface of the earth in something resembling latitude and longitude. They recognized and named five planets and achieved some success in predicting eclipses. Since the health of armies is important, medicine received considerable attention. More than five hundred drugs, both vegetable and mineral, were catalogued and their uses indicated. Symptoms of various diseases were described and were generally interpreted as due to natural causes, although

[1] A. T. E. Olmstead, *History of Assyria*, p. 553.



The Lion Hunt. A typical specimen of Assyrian sculpture in relief. The Assyrians were masters in depicting scenes of violence and animal ferocity.

incantations and the prescription of disgusting compounds to drive out demons were still commonly employed as methods of treatment.

The excellence of Assyrian art

In the domain of art the Assyrians surpassed the Old Babylonians and at least equaled the work of the Sumerians, although in different form. Sculpture was the art most highly developed, particularly in the low reliefs. These portrayed dramatic incidents of war and the hunt with the utmost fidelity to nature and a vivid description of movement. The Assyrians delighted in depicting the cool bravery of the hunter in the face of terrific danger, the ferocity of lions at bay, and the death agonies of wounded beasts. Unfortunately this art was limited almost entirely to the two themes of war and sport. Its purpose was to glorify the exploits of the ruling class. Architecture ranked second to sculpture from the standpoint of artistic excellence. Assyrian palaces and temples were built of stone, obtained from the mountainous areas of the north, instead of the mud brick of former times. Their principal features were the arch and the dome. The column was also used but never very successfully. The chief demerit of this architecture was its hugeness, which the Assyrians appeared to regard as synonymous with beauty.

Assurbanipal, patron of culture

Assyrian culture reached its height in the seventh century during the reign of Assurbanipal. A man of considerable refinement, he was almost the only ruler of the nation to devote any attention to the patronage of learning and the arts. He ordered his scribes to collect all the copies of Babylonian writings that could be found on every conceivable subject and bring them to the royal library at Nineveh. Where necessary he authorized revisions to be made in order to bring the ancient learning into harmony with more recent



Assyrian Winged Bull, now in Oriental Institute, University of Chicago. Its precise significance is unknown, but it may have been intended to symbolize the Assyrian militarists' worship of strength and speed.

knowledge. Under Assurbanipal's patronage the royal library came to contain more than 22,000 tablets. Many of them were magic formulas, but included in the lot were thousands of letters, business documents, and military chronicles. The king himself was the author of an autobiography and of numerous letters that displayed some literary talent. But the most important of the original compositions of the Assyrians were their narratives of military campaigns, which, in their highly embellished and deliberately exaggerated form, represent one of the earliest attempts at patriotic historical writing.

4. The Chaldean Renascence

The Chaldean or final stage in Mesopotamian civilization

The Mesopotamian civilization entered its final stage with the overthrow of Assyria and the establishment of Chaldean supremacy. This stage is often called the Neo-Babylonian, because Nebuchadnezzar and his followers restored the capital at Babylon and attempted to revive the culture of Hammurabi's time. As might have been expected, their attempt was not wholly successful. The Assyrian metamorphosis had altered that culture in various profound and ineffaceable ways. Besides, the Chaldeans themselves had a history of their own which they could not entirely escape. Nevertheless, they did manage to revive certain of the old institutions and ideals. They restored the ancient law and literature, the essentials of the Old Babylonian form of government, and the economic system of their supposed ancestors with its dominance of industry and trade. Farther than this they were unable to go.

The astral religion of the Chaldeans

It was in religion that the failure of the Chaldean renascence was most conspicuous. Although Marduk was restored to his traditional place at the head of the pantheon, the system of belief was little more than superficially Babylonian. What the Chaldeans really did was to develop an astral religion. The gods were divested of their limited human qualities and exalted into transcendent, omnipotent beings. They were actually identified with the planets themselves. Marduk became Jupiter, Ishtar became Venus, and so on. Though

still not entirely aloof from man, they certainly lost their character as beings who could be cajoled and threatened and coerced by magic. They ruled the universe almost mechanically. While their immediate intentions were sometimes discernible, their ultimate purposes were inscrutable.

The growth of fatalism

Two significant results flowed from these amazing conceptions. The first was an attitude of fatalism. Since the ways of the gods were past finding out, all that man could do was to resign himself to his fate. It behooved him therefore to submit absolutely to the gods, to trust in them implicitly, in the vague hope that the results in the end would bo good. Thus arose for the first time in history the conception of piety as submission—a conception which was adopted in several other religions, as we shall see in succeeding chapters. For the Chaldeans it implied no otherworldly significance; one did not resign himself to calamities in this life in order to be justified in the next. The Chaldeans had no interest in a life to come. Submission might bring certain earthly rewards, but in the main, as they conceived it, it was not a means to an end at all. It was rather the expression of an attitude of despair, of humility in the face of mysteries that could not be fathomed.

The development of a spiritual consciousness

The second great result which came from the growth of an astral religion was the development of a stronger spiritual consciousness. This is revealed in the penitential hymns of unknown authors and in the prayers which were ascribed to Nebuchadnezzar and other kings as the spokesmen for the nation. In most of them the gods are addressed as exalted beings who are concerned with justice and righteous conduct on the part of men, although the distinction between ceremonial and genuine morality is not always sharply drawn. It has been asserted by one author that these hymns could have been used by the Hebrews with little modification except for the substitution of the name of Yahweh for that of the Chaldean god.[1]

The abasement of man

With the gods promoted to so lofty a plane, it was perhaps inevitable that man should have been abased. Creatures possessed of mortal bodies could not be compared with the transcendent, passionless beings who dwelt in the stars and guided the destinies of the earth. Man was a lowly creature, sunk in iniquity and vileness, and hardly even worthy of approaching the gods. The consciousness of sin already present in the Babylonian and Assyrian religions now reached a stage of almost pathological intensity. In the hymns the sons of men are compared to prisoners, bound hand and foot, languishing in darkness. Their transgressions are "seven times seven." Their misery is increased by the fact that their evil nature has prompted them to sin unwittingly.[2] Never before had men been

[1] Morris Jastrow, *The Civilization of Babylonia and Assyria*, p. 217.
[2] *Ibid.*, pp. 471–74.

regarded as so hopelessly depraved, nor had religion been fraught with so gloomy a view of life.

Chaldean morality

Curiously enough, the pessimism of the Chaldeans does not appear to have affected their morality very much. So far as the evidence goes, they indulged in no rigors of asceticism. They did not mortify the flesh, nor did they even practice self-denial. Apparently they took it for granted that man could not avoid sinning, no matter how hard he tried. They seem to have been just as deeply engrossed in the material interests of life and in the pursuit of the pleasures of sense as any of the earlier nations. Indeed, it seems that they were even more greedy and sensual. Occasional references were made in their prayers and hymns to reverence, kindness, and purity of heart as virtues, and to oppression, slander, and anger as vices, but these were intermingled with ritualistic conceptions of cleanness and uncleanness and with expressions of desire for physical satisfactions. When the Chaldeans prayed, it was not always that their gods would make them good, but more often that they would grant long years, abundant offspring, and luxurious living.

Chaldean science

Aside from religion, the Chaldean culture differed from that of the Sumerians, Babylonians, and Assyrians chiefly in regard to scientific achievements. Without doubt the Chaldeans were the most capable scientists in all of Mesopotamian history, although their accomplishments were limited primarily to astronomy. They worked out the most elaborate system for recording the passage of time which had yet been devised, with their invention of the seven-day week and their division of the day into twelve double-hours of 120 minutes each. They kept accurate records of their observation of eclipses and other celestial occurrences for more than 350 years—until long after the downfall of their empire. Two of their most spectacular achievements were made by individual astronomers whose names have come down to us. In the sixth century Nabu-Rimannu calculated the correct length of the year within about twenty-six minutes, and about a hundred years later Kidinnu discovered and proved the periodic change in the inclination of the earth's axis.

The religious basis of Chaldean science

The motivating force behind Chaldean astronomy was religion. The chief purpose of mapping the heavens and collecting astronomical data was to discover the future which the gods had prepared for the race of men. Since the planets were gods themselves, that future could best be divined in the movements of the heavenly bodies. Astronomy was therefore primarily astrology. Sciences other than astronomy continued in a backward state, probably because they were not definitely related to religion. Medicine in particular showed little advance beyond the stage it had reached under the Assyrians. The same was true of the remaining aspects of Chaldean culture. Art differed only in its greater magnificence. Literature, dominated

by the antiquarian spirit, revealed a monotonous lack of originality. The writings of the Old Babylonians were extensively copied and re-edited, but they were supplemented by little that was new.

5. The Mesopotamian Legacy

Mesopotamian influence: (1) upon the modern world

Notwithstanding the relatively inferior quality of the Mesopotamian civilization, its influence has been scarcely less than that of Egypt. From one or another of the four Mesopotamian nations we get a considerable number of our most common culture elements: the seven-day week; the fact that the dials on our watches and clocks contain numerals up to twelve, corresponding to the Chaldean division of the day into twelve double-hours; the belief in horoscopes; the superstition of planting crops according to the phases of the moon; the twelve signs of the zodiac; the circle of 360 degrees; and the arithmetical process of multiplication.

(2) upon the Persians, Phoenicians, Canaanites, and Hebrews

The influence exerted upon various nations of antiquity was even more significant. The Persians were profoundly affected by Chaldean culture. The Hittites, who aided the Kassites in overthrowing the Babylonians about 1750 B.C., adopted the clay tablets, the cuneiform writing, the Gilgamesh epic, and much of the religion of the nation they conquered. The Babylonian religion also had its effect upon the Phoenicians, as is evidenced by their worship of Astarte (Ishtar) and Tammuz. From the Sumerians or Old Babylonians the Canaanites derived a large part of their law as well as a good many of their religious beliefs. But the principal heirs of Mesopotamian culture were the Hebrews. Possibly as far back as 1800 B.C. some of their ancestors had lived for a time in the northwestern portion of the valley between the two rivers. Numerous Mesopotamian traits were also acquired indirectly through contact with the Canaanites and Phoenicians. It was probably in this manner that the Hebrews came into possession of the Creation and Flood legends and a system of law which had its ultimate origin in the Mesopotamian civilization. An even greater influence was exerted during the period of the Captivity, from 586 to 539 B.C. During these years the Jews were brought into direct association for the first time with a rich and powerful nation. In spite of their hatred of their captors they unconsciously adopted many of their ways. There is evidence, for example, that they acquired some of the Chaldean penchant for trade. In addition, much of the symbolism, pessimism, fatalism, and demonology of the Chaldeans passed into the religion of Judah, transforming it markedly from the character it had had in the time of the Prophets.[1]

Mesopotamian institutions and beliefs also exerted their influence upon the Greeks and the Romans, although for the most part in-

[1] The Hebrew calendar to this day contains a month named in honor of the god Tammuz.

directly. The Stoic philosophy with its doctrines of determinism and pessimism may have reflected that influence in some measure, since its originator, Zeno, was a Semite, probably a Phoenician. A better case could possibly be made for the Mesopotamian origin of such Roman practices as divination, worship of the planets as gods, and the use of the arch and the vault. Several of these elements were introduced to the Romans by the Etruscans, a people of western Asiatic origin. Others were brought in by the Romans themselves as a result of their military campaigns in Asia Minor. That there were natives of the Mesopotamian region resident in Rome, in the later centuries of her history at least, is evidenced by the fact that the Romans used the name "Chaldeans" as synonymous with "astrologers" and sought the aid of such persons on numerous occasions in divining the future.

(3) upon the Greeks and the Romans

CHAPTER 5 The Civilization of Ancient Persia

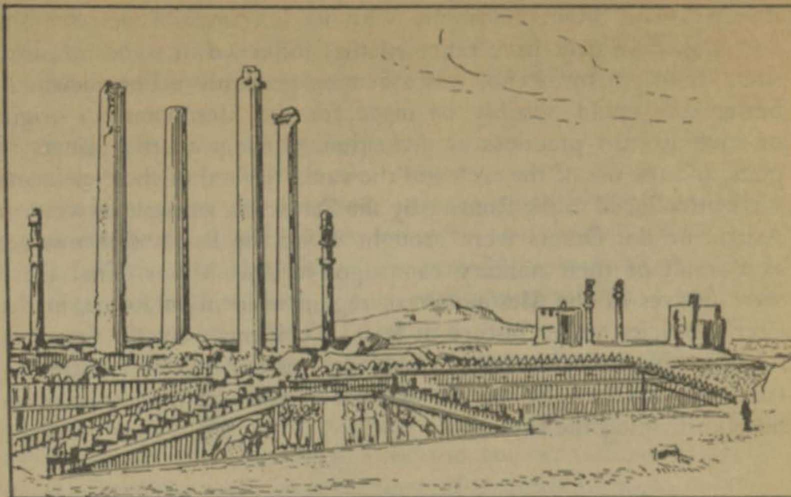
1. Persian Culture

The eclectic culture of Persia

The culture of the Persians, in the narrower sense of intellectual and artistic achievements, was largely derived from that of previous civilizations. Much of it came from Mesopotamia, but a great deal of it from Egypt, and some from Lydia and northern Palestine. Their system of writing was originally the Babylonian cuneiform, but in time they devised an alphabet of thirty-nine letters, based upon the alphabet of the Arameans who traded within their borders. In science they accomplished nothing, except to adopt with some slight modifications the solar calendar of the Egyptians and to encourage exploration as an aid to commerce. They deserve credit also for diffusing a knowledge of the Lydian coinage throughout many parts of western Asia.

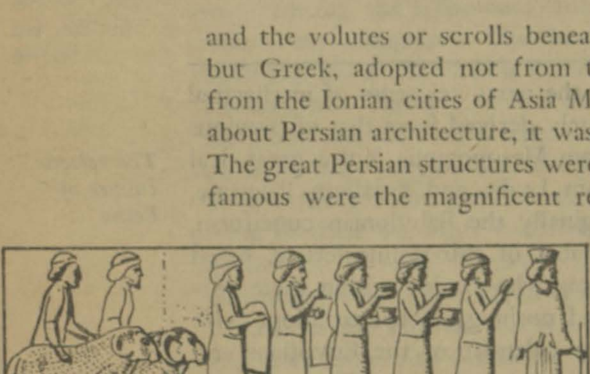
The eclectic character of Persian art

It was the architecture of the Persians, however, which gave the most positive expression of the eclectic character of their culture. They copied the raised platform and the terraced building style which had been so common in Babylonia and Assyria. They imitated also the winged bulls, the brilliantly colored glazed bricks, and other decorative motifs of Mesopotamian architecture. But at least two of the leading features of Mesopotamian construction were not used by the Persians at all—the arch and the vault. In place of them they adopted the column and the colonnade from Egypt. Such matters as interior arrangement and the use of palm and lotus designs at the base of columns also point very distinctly toward Egyptian influence. On the other hand, the fluting of the columns



The Great Palace of Darius and Xerxes at Persepolis. Shown here is the Eastern Stairway with the Gate of Xerxes on the right. Persian architects made use of fluted columns, probably copied from the Greeks, and reliefs resembling those of the Assyrians.

and the volutes or scrolls beneath the capitals were not Egyptian but Greek, adopted not from the mainland of Greece itself but from the Ionian cities of Asia Minor. If there was anything unique about Persian architecture, it was the fact that it was purely secular. The great Persian structures were not temples but palaces. The most famous were the magnificent residences of Darius and Xerxes at



Reliefs from the Staircase at Persepolis. Pictured here are conquered peoples bringing tribute to the Persian king. The various nationalities differ only in styles of dress.

Persepolis. The latter, built in imitation of the temple at Karnak, had an enormous central audience-hall containing a hundred columns and surrounded by innumerable rooms which served as offices and as quarters for the eunuchs and members of the royal harem.

2. *The Zoroastrian Religion*

By far the most enduring influence left by the ancient Persians was that of their religion. Their system of faith was of ancient origin. It was already highly developed when they began their conquests. And so strong was its appeal, and so ripe were the conditions for its acceptance, that it spread through most of western Asia. Its doctrines turned other religions inside out, displacing beliefs which had been held for ages. The world outlook of nations to this day has been both uplifted and perverted by it.

The religion of the Persians

Although the roots of this religion can be traced as far back as the fifteenth century B.C., its real founder was Zoroaster,[1] who appears to have lived about one hundred years before the Persians established their empire. From him the religion derives its name of Zoroastrianism. He seems to have conceived it to be his mission to purify the traditional beliefs of his people—to eradicate polytheism, animal sacrifice, and magic and to establish their worship on a more spiritual and ethical plane. That the movement he led was the natural accompaniment of the transition to a more civilized agricultural existence is revealed in his teaching of reverence for the cow and in his prescription of cultivation of the soil as a sacred duty. In spite of his reforming efforts many of the old superstitions survived (as they usually do), and were gradually fused with the new ideals.

The founding of Zoroastrianism

In many respects Zoroastrianism had a character unique among the religions of the world up to that time. First of all, it was dualistic—not monistic like the Sumerian and Babylonian religions, in which the same gods were capable of both good and evil; nor did it make any pretensions to monotheism, or belief in a single divinity, as did the late Egyptian and Hebrew religions. Two great deities ruled over the universe: one, Ahura-Mazda, supremely good and incapable of any wickedness, embodied the principles of light, truth, and righteousness; the other, Ahriman, treacherous and malignant, presided over the forces of darkness and evil. The two were engaged in a desperate struggle for supremacy. Although they were about evenly matched in strength, the god of light would eventually triumph, and the world would be saved from the powers of darkness.

Characteristics of Zoroastrianism: (1) dualism

In the second place, Zoroastrianism was an eschatological religion. "Eschatology" is the doctrine of last or final things. It includes such ideas as the coming of a messiah, the resurrection of the dead, a last judgment, and the translation of the redeemed into a paradise eternal. According to the Zoroastrian belief the world would endure for twelve thousand years. At the end of nine thousand years the second coming of Zoroaster would occur as a sign and a promise

(2) eschatological beliefs

[1] "Zoroaster" is the corrupt Greek form of the Persian name Zarathustra.

of the ultimate redemption of the good. This would be followed in due course by the miraculous birth of Saoshyant, the messiah, whose work would be the perfection of the good as a preparation for the end of the world. Finally the last great day would arrive when Ahura-Mazda would overpower Ahriman and cast him down into the abyss. The dead would then be raised from their graves to be judged according to their deserts. The righteous would enter into immediate bliss, while the wicked would be sentenced to the flames of hell. Ultimately, though, all would be saved; for the Persian hell, unlike the Christian, did not last forever.

(3) an ethical religion

From what has been said already, the inference will readily be drawn that the Zoroastrian religion was definitely an ethical one. Although it contained suggestions of predestination, of the election of some from all eternity to be saved, in the main it rested upon the assumption that men possessed free will, that they were free to sin or not to sin, and that they would be rewarded or punished in the after-life in accordance with their conduct on earth. The virtues commended by the religion made an imposing list. Some were obviously of economic or political origin: diligence, the keeping of contracts, obedience to rulers, the begetting of numerous offspring, and tilling the soil ("He who sows corn sows holiness"). Others had a broader significance: Ahura-Mazda commanded that men should be truthful, that they should love and help one another to the best of their power, that they should befriend the poor and practice hospitality. The essence of these broader virtues was perhaps expressed in another of the god's decrees: "Whosoever shall give meat to one of the faithful . . . he shall go to Paradise."

The principal sins

The forms of conduct forbidden were sufficiently numerous and varied to cover the whole list of the Seven Cardinal Sins of medieval Christianity and a great many more. Pride, gluttony, sloth, covetousness, wrathfulness, lust, adultery, abortion, slander, and waste were among the more typical. The taking of interest on loans to others of the same faith was described as the "worst of sins," and the accumulation of riches was strongly discountenanced. The restraints which men were to practice included also a kind of negative Golden Rule: "That nature alone is good which shall not do unto another whatever is not good for its own self." It is pertinent to add that the original Zoroastrianism condemned the ascetic way of life. Self-inflicted suffering, fasting, and even excessive grief were prohibited on the ground that they injured both mind and body and rendered human beings unfit for the duties of agriculture and the begetting of children. Temperance rather than complete abstinence was the traditional Persian ideal.[1]

[1] The quotations in the last two paragraphs are taken from J. O. Hertzler, *The Social Thought of the Ancient Civilizations*, pp. 149–158.

CHAPTER 6 The Hebrew Civilization

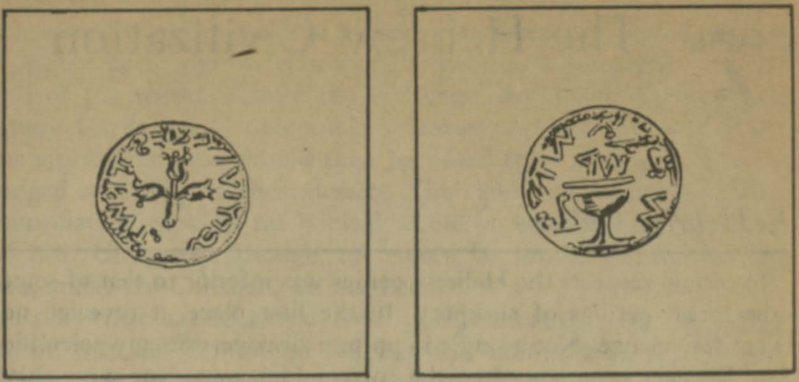
1. Hebrew Culture

The limitations of the Hebrew genius

In certain respects the Hebrew genius was inferior to that of some other great nations of antiquity In the first place, it revealed no talent for science. Not a single important discovery in any scientific field has ever been traced to the ancient Hebrews. Nor were they particularly adept in appropriating the knowledge of others. They could not build a bridge or a tunnel except of the crudest sort. Whether it was from lack of interest in these things or whether it was because of too deep an absorption in religious affairs is not clear. In the second place, they seem to have been almost entirely devoid of artistic skill. Their only examples of the glyptic arts were engraved seals similar to those made by the Sumerians and Hittites and used for the purpose of affixing signatures. They had no architecture, sculpture, or painting worthy of mention. The famous temple at Jerusalem was not a Hebrew building at all but a product of Phoenician skill, for Solomon imported artisans from Tyre to finish the more complicated tasks.

Hebrew law

It was rather in law, literature, and philosophy that the Hebrew genius was most perfectly expressed. Although all of these subjects were closely allied with religion, they did have their secular aspects. The finest example of Jewish law was the Deuteronomic Code, which forms the core of the Book of Deuteronomy. Despite claims of its great antiquity, it was probably an outgrowth of the prophetic revolution. It was based in part upon an older Code of the Covenant, which was derived in considerable measure from the laws of the Canaanites and the Old Babylonians. In general, its provisions were more enlightened than those of Hammurabi's code. One of them enjoined liberality to the poor and the stranger. Another commanded that the Hebrew slave who had served six years should be freed; and insisted that he must not be sent away empty. A third provided that judges and other officers should be chosen by the people and forbade them to accept gifts or to show partiality in any form. A fourth condemned witchcraft, divination, and necromancy. A fifth denounced the punishment of children for the guilt of their fathers and affirmed the principle of individual responsibility for sin. A sixth prohibited the taking of interest on any kind of loan made by one Jew to another. A seventh required that at the end of every seven years there should be a "release" of debts. "Every creditor that lendeth aught unto his neighbour shall release it; he shall not



The Shekel of Ancient Israel. Depicted are the two sides of the silver shekel of 141–137 B.C. This coin weighs 220 grains; a United States silver dollar weighs 412.5 grains. The Chaldeans and Phoenicians also had coins called shekels.

exact it of his neighbour, or of his brother . . . save when there shall be no poor among you."

Democratic and equalitarian ideals

As one would expect from the circumstances out of which it grew, a cardinal purpose of the Deuteronomic Code was to infuse into Jewish society a more democratic and equalitarian character. Its authors were not interested in abstract principles. For example, they did not condemn slavery as wrong in itself; they sought merely to prevent the permanent enslavement of Jews. Nevertheless, it is undeniably true that this code did provide for more political and social democracy than the laws of any other Oriental nation except Egypt. Even the king himself was forbidden to accumulate great wealth or to indulge in ostentatious luxury. No military despotism of the Assyrian or Babylonian type was to be tolerated. The king was not above the law but very definitely subject to it; he was required to have constantly with him a copy of the code and to "read therein all the days of his life . . . that his heart be not lifted up above his brethren, and that he turn not aside from the commandment." Moreover, his power and that of his officers was strictly limited. The administration of justice was left almost entirely in the hands of the people. In cases of disputed guilt the elders of the city would decide, but the punishment provided in the code would be inflicted by the family of the victim or by the community at large. The conscription of labor for foreign service was also prohibited, and exemption from military duty was required to be granted to the man who had built a new house, planted a new vineyard, or married a new wife; and even to the man who was "fearful and faint-hearted . . . lest his brethren's heart faint as well as his heart."

Not all of the writings of the Hebrews had high literary merit.

A considerable number were dull, repetitious chronicles. Nevertheless, most of them, whether in the form of battle song, prophecy, love lyric, or drama, were rich in rhythm, concrete images, and emotional vigor. Few passages in any language can surpass the scornful indictment of social abuses voiced by the prophet Amos:

Amos' indictment of social abuses

Hear this, O ye that swallow up the needy, even to make the poor of the land to fail,
Saying, when will the new moon be gone, that we may sell corn?
And the sabbath that we may set forth wheat,
Making the ephah small, and the shekel great,
And falsifying the balances by deceit?
That we may buy the poor for silver, and the needy for a pair of shoes;
Yea, and sell the refuse of the wheat?

The most beautiful of Hebrew love lyrics was the Song of Songs or the Song of Solomon. Its theme was quite probably derived from an old Canaanite hymn of spring, celebrating the passionate affection of the Shulamith or fertility goddess for her lover, but it had long since lost its original meaning. The following verses are typical of its sensuous beauty:

The Song of Songs

I am the rose of Sharon
and the lily of the valleys.
As the lily among thorns,
so is my love among the daughters.

. . . .

My beloved is white and ruddy,
the chiefest among ten thousand.
His head is as the most fine gold;
his locks are bushy and black as a raven:
His eyes are as the eyes of doves by the rivers of waters,
washed with milk and fitly set.
His cheeks are as a bed of spices, as sweet flowers;
his lips like lilies, dropping sweet smelling myrrh.

. . . .

How beautiful are thy feet with shoes, O prince's daughter!
The joints of thy thighs are like jewels,
the work of the hands of a cunning workman.

Few authorities would deny that the supreme achievement of the Hebrew literary genius was the Book of Job. In form the work is a drama of the tragic struggle between man and fate. Its central theme is the problem of evil: how it can be that the righteous suffer while the eyes of the wicked stand out with fatness. The story was an old one, adapted very probably from a Babylonian writing of similar

The Book of Job

content, but the Hebrews introduced into it a much deeper realization of philosophical possibilities. The main character, Job, a man of unimpeachable virtue, is suddenly overtaken by a series of disasters: he is despoiled of his property, his children are killed, and his body is afflicted with a painful disease. His attitude at first is one of stoic resignation; the evil must be accepted along with the good. But as his sufferings increase he is plunged into despair. He curses the day of his birth and delivers an apostrophe to death, where "the wicked cease from troubling and the weary be at rest."

The problem of evil

Then follows a lengthy debate between Job and his friends over the meaning of evil. The latter take the traditional Hebraic view that all suffering is a punishment for sin, and that those who repent are forgiven and strengthened in character. But Job is not satisfied with any of their arguments. Torn between hope and despair, he strives to review the problem from every angle. He even considers the possibility that death may not be the end, that there may be some adjustment of the balance hereafter. But the mood of despair returns, and he decides that God is an omnipotent demon, destroying without mercy wherever His caprice or anger directs. Finally, in his anguish he appeals to the Almighty to reveal Himself and make known His ways to man. God answers him out of the whirlwind with a magnificent exposition of the tremendous works of nature. Convinced of his own insignificance and the unutterable majesty of God, Job despises himself and repents in dust and ashes. In the end no solution is given of the problem of individual suffering. No promise is made of recompense in a life hereafter, nor does God make any effort to refute the hopeless pessimism of Job. Man must take comfort in the philosophic reflection that the universe is greater than himself, and that God in the pursuit of His sublime purposes cannot really be limited by human standards of equity and goodness.

Hebrew philosophy: early examples

As philosophers the Hebrews surpassed every other people before the Greeks with the possible exception of the Egyptians. While they were not brilliant metaphysicians and constructed no great theories of the universe, they did concern themselves with most of the problems relating to the life and destiny of man. Their thought was essentially personal rather than abstract. Probably the earliest of their writings of a distinctly philosophical character were the Old Testament Book of Proverbs and the Apocryphal Book of Ecclesiasticus. In their final form both were of late composition, but much of the material they contain was doubtless quite ancient. Not all of it was original, for a considerable portion had been taken from Egyptian sources, especially from the writings of Amenemope, who lived about 1000 B.C. The philosophy of Proverbs and Ecclesiasticus is not very profound and may be considered as representing the mental adolescence of the Hebrew nation. It is almost entirely ethical, but its appeal is primarily to prudential considerations, not

to the will of God or to any absolute standards of right and wrong. It has as its essential teaching: be temperate, diligent, wise, and honest, and you will surely be rewarded with prosperity, long life, and a good name among men. Only in such isolated passages as the following is any recognition given to higher motives of sympathy or respect for the rights of others: "Whoso mocketh the poor reproacheth his Maker; and he that is glad at calamities shall not be unpunished."

Ecclesiastes

A much more profound and critical philosophy is contained in Ecclesiastes, an Old Testament book, not to be confused with the Apocryphal Ecclesiasticus mentioned above. The author of Ecclesiastes is unknown. In some way it came to be attributed to Solomon, but he certainly did not write it, for it includes doctrines and forms of expression unknown to the Hebrews for hundreds of years after his death. Modern critics date it no earlier than the third century B.C. The basic ideas of its philosophy may be summarized as follows:

(1) Mechanism. The universe is a machine that rolls on forever without evidence of any purpose or goal. There is nothing new under the sun, no progress, merely endless repetition of the past. Sunrise and sunset, birth and death are but separate phases of constantly recurring cycles.

(2) Fatalism. Man is a victim of the whims of fate. There is no necessary relation between effort and success: "The race is not to the swift, nor the battle to the strong, neither yet bread to the wise . . . but time and chance happeneth to them all."

(3) Skepticism. Knowledge of ultimate things is impossible. There is no evidence of any soul or any life after death. Men and beasts are alike: "all are of the dust, and all turn to dust again."

(4) Pessimism. All is vanity and vexation of spirit. Fame, riches, extravagant pleasure are snares and delusions in the end. Although wisdom is better than folly, even it is not a sure key to happiness, for an increase in knowledge brings a keener awareness of suffering. Only a good name and joy in the work of one's hands are much to be prized.

(5) Moderation. Extremes of asceticism and extremes of indulgence are both to be avoided. "Be not righteous over much . . . be not over much wicked: why shouldest thou die before thy time?"

2. *The Magnitude of the Hebrew Influence*

The nature of the Hebrew influence

The influence of the Hebrews, like that of most other Oriental nations, has been chiefly religious and ethical. While it is true that the Old Testament has served as a source of inspiration for much of the literature and art of the Renaissance and early modern civilizations, this has resulted largely because the Bible was already

familiar material as a part of the religious heritage. The same explanation can be applied to the use of the Old Testament as a source of law and political theory by the Calvinists in the sixteenth century, and by many other Christians both before and since.

Hebrew foundations of Christianity: the beliefs of the Pharisees

But these facts do not mean that the Hebrew influence has been slight. On the contrary, the history of nearly every Western civilization during the past two thousand years would have been radically different without the heritage from Israel. For it must be remembered that Hebrew beliefs were among the principal foundations of Christianity. The relationship between the two religions is frequently misunderstood. The movement inaugurated by Jesus of Nazareth is commonly represented as a revolt against Judaism; but such was only partly the case. On the eve of the Christian era the Jewish nation had come to be divided into three main sects: a majority sect of Pharisees, and two minority sects of Sadducees and Essenes. The Pharisees represented the middle classes and some of the better educated common folk. They believed in the resurrection, in rewards and punishments after death, and in the coming of a political messiah. Intensely nationalistic, they advocated participation in government and faithful observance of the ancient ritual. They regarded all parts of the law as of virtually equal importance, whether they applied to matters of ceremony or to obligations of social ethics.

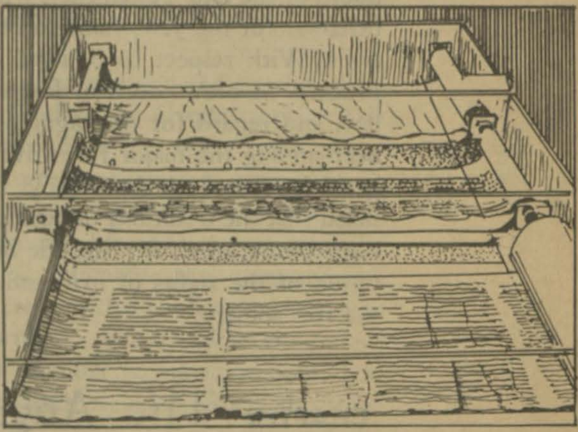
The Sadducees and the Essenes

Representing altogether different strata of society, the minority sects disagreed with the Pharisees on both religious and political issues. The Sadducees, including the priests and the wealthier classes, were most famous for their denial of the resurrection and of rewards and punishments in an afterlife. Although temporarily at least they favored the acceptance of Roman rule, their attitude toward the ancient law was even more inflexible than that of the Pharisees. The sect of Essenes, the smallest of them all, was possibly the most influential. Its members, who were drawn from the lower classes, practiced asceticism and preached otherworldliness as means of protest against the wealth and power of priests and rulers. They ate and drank only enough to keep themselves alive, held all their goods in common, and looked upon marriage as a necessary evil. Far from being fanatical patriots, they regarded government with indifference and refused to take oaths under any conditions. They emphasized the spiritual aspects of religion rather than the ceremonial and stressed particularly the immortality of the soul, the coming of a religious messiah, and the early destruction of the world. Their most noted member appears to have been John the Baptist, though he later repudiated the sect on the ground that it was preparing only its own followers and not the nation as a whole for the coming of the messiah. It was he who provided an apparent link between the Essenes and the earliest Christians.

The Dead Sea scrolls

Until recently scholars were dependent for their knowledge of the Essenes almost entirely upon secondary sources. But in 1947

an Arab shepherd unwittingly opened the way to one of the most spectacular discoveries of documentary evidence in world history. Searching for a lost sheep on the western shore of the Dead Sea, he threw a stone that entered a hole in the rocks and made such a peculiar noise that he ran away in fright. He returned, however, with a friend to investigate and discovered a cave in which were stored about fifty cylindrical earthen jars stuffed with writings on leather scrolls. Studied by scholars, the scrolls revealed the existence of a monastic community which flourished from about 130 B.C. to 67 A.D. Its members lived a life of humility and self-denial, holding their goods in common, and devoting their time to prayer and sacraments and to studying and copying Biblical texts. They looked forward confidently to the coming of a messiah, the overthrow of evil, and the establishment of God's kingdom on earth. That they belonged to the sect of Essenes seems almost beyond question.



The Dead Sea Scrolls, Now on Display in an Underground Vault at the Hebrew University in Jerusalem. The oldest extant examples of Hebrew religious literature, they furnish us with evidence of the activities of the Essenes, and perhaps other mystical and otherworldly sects, about the beginning of the Christian era.

Hebrew influence upon Christianity

All branches of Judaism except the Sadducees strongly influenced the development of Christianity. Indeed, many Christians regard their religion as the completion and fulfillment of the religion of the Jews. From Jewish sources Christianity obtained its cosmogony, or theory of the origin of the universe; the Ten Commandments; and a large portion of its theology. Jesus himself, although he condemned the Pharisees for their legalism and hypocrisy, did not repudiate all of their tenets. Like them he revered the prophets, believed in rewards and punishments after death, and considered the Jewish people the chosen of God. Instead of abolishing the ancient law, as he is popularly supposed to have done, he demanded its fulfillment, insisting, however, that it should not be made the essential part of religion. To what extent the beliefs and practices of the Christian religion were molded by the more radical Judaism of the Essenes is a question whose answer must await further research. Perhaps the fundamental influence was slight. Nonetheless, we know that many early Christians practiced asceticism, regarded

government with indifference, held all their goods in common, and believed in the imminent end of the world. These parallels do not mean, of course, that Christianity was a mere adaptation of beliefs and practices emanating from Judaism. On account of various factors there was much in it that was unique; but that is a subject which can be discussed more conveniently in another connection.

Ethical and political influence of the Hebrews

The ethical and political influence of the Hebrews has also been substantial. Their moral conceptions have been a leading factor in the development of the negative approach toward ethics which has prevailed for so long in Western countries. For the early Hebrews "righteousness" consisted primarily in the observance of taboos. Although a positive morality of charity and social justice made rapid headway during the time of the prophets, this in turn was partly obscured by the revival of priestly influence in the period that followed. As a result, the Torah or Pentateuch (the first five books of the Old Testament), which embraced the code of personal behavior for the Jew, came to be crammed with ritualistic prohibitions. With respect to political influence, the record is more impressive. Hebrew ideals of limited government, the sovereignty of law, and regard for the dignity and worth of the individual have been among the major formative influences which have shaped the growth of modern democracy. It is now almost universally recognized that the traditions of Judaism contributed equally with the influence of Christianity and the Stoic philosophy in fostering recognition of the rights of man and in promoting the development of the free society.

CHAPTER 7 The Aegean Culture

A long-forgotten civilization

By a strange coincidence the discovery of the existence of the Hittite and Aegean civilizations was made at just about the same time. Before 1870 scarcely anyone dreamed that a great civilization had flourished on the Aegean islands and on the shores of Asia Minor for hundreds of years prior to the rise of the Greeks. Students of the *Iliad* knew of course of the references to a strange people who were supposed to have dwelt in Troy, to have kidnaped the fair Helen, and to have been punished by the Greeks for this act by the siege and destruction of their city; but it was commonly supposed that these accounts were mere figments of a poetical imagination.

The first discovery of an Aegean culture center was made not by a professional archaeologist but by a retired German businessman, Heinrich Schliemann. Fascinated from early youth by the

stories of the Homeric epics, he determined to dedicate his life to archaeological research as soon as he had sufficient income to enable him to do so. Luckily for him and for the world he accumulated a fortune in Russian petroleum and then retired from business to spend both time and money in the pursuit of his boyhood dreams. In 1870 he began excavating at Troy. Within a few years he had uncovered portions of nine different cities, each built upon the ruins of its predecessor. The second of these cities he identified as the Troy of the *Iliad*, although it has been proved since that Troy was the sixth. After fulfilling his first great ambition, he started excavations on the mainland of Greece and eventually discovered two other Aegean cities, Mycenae and Tiryns. The work of Schliemann was soon followed by that of other investigators, notably the Englishman, Sir Arthur Evans, who discovered Knossos, the resplendent capital of the kings of Crete. Up to the present time more than half of the ancient Aegean sites have been carefully searched, and a wealth of knowledge has been accumulated about various aspects of the culture.

The discoveries by Schliemann and others

The Aegean civilization appears to have originated on the island of Crete, the settlements on the mainland of Greece and in Asia Minor being evidently due to expansion. In few other cases in history does the geographic interpretation of culture origins fit so neatly. Crete has a benign and equable climate, neither so hot as to make men lazy nor so cold as to require a life of unceasing struggle. While the soil is fertile, it is not of unlimited area; consequently, as the population increased, men were impelled to sharpen their wits and to contrive new means of earning a living. Some emigrated; others took to the sea; but a larger number remained at home and developed articles for export. The latter included, especially, wine and olive oil, pottery, gems and seals, knives and daggers, and objects of skilled craftsmanship. The chief imports were foodstuffs and metals. As a result of such trade, the country became an industrial and commercial nation with prosperous cities and extensive contacts with the surrounding civilized world. Added to these factors of a favorable environment were the beauties of nature, which abounded almost everywhere, stimulating the development of a marvelous art.

Geographic factors in Aegean history

The Aegean civilization was one of the earliest in the history of the world. As far back as 3000 B.C. the natives of Crete had made the transition from the Neolithic stage to the age of metals and probably to the age of writing. The first peak of advancement was attained under the leadership of the cities of Knossos and Phaistos about 1800 B.C. About a hundred years later a frightful calamity occurred. The great palace at Knossos was demolished and the chief buildings in several other cities as well. Exactly what happened has not been determined, but there is evidence that an earthquake followed by revolution accounted for the disaster. At any rate a new dynasty

The Aegean civilization one of the oldest in the world

came to the throne, a new system of writing was adopted, and other elements in the life of the past were changed.

The glory and the downfall of the Aegean civilization

After about fifty years of uncertainty the Aegean civilization rose to new heights of brilliance and strength. Troy and the cities of Crete were rebuilt, and other great centers were established at Mycenae and Tiryns. Soon afterward Cretan hegemony was extended over the remaining portions of the Aegean world. But the new age of power and splendor was not destined for long duration. In the sixteenth century B.C. a group of barbarian Greeks known as Achaeans expanded from their original home Achaia in the northern Peloponnesus and eventually conquered Mycenae. Gradually absorbing the material culture of the vanquished, they became rich and powerful sea lords. About 1400 B.C. they overwhelmed the city of Knossos, and soon the whole island of Crete passed under their sway. Although they were no longer a primitive people, they seem never to have appreciated the finer aspects of Aegean culture. As a result this period of Mycenaean supremacy was marked by a decline in Aegean art and probably in intellect as well. In the twelfth century the Achaeans waged their successful war with the Trojans, but less than two hundred years later they fell themselves the victims of barbarian invasion. The new hordes that came in were also Greeks, but they belonged to the group known as Dorians (from Doris in central Greece). Their culture was relatively primitive, except for the fact that they had iron weapons. For centuries they had lived on the mainland of Greece, gradually penetrating farther southward. About 1200 B.C. they began their conquest of the Mycenaean cities. Two hundred years later the Aegean civilization had passed into the limbo of history.

The racial character of the Aegean people

The racial character of the Aegean people has been determined with substantial accuracy. Archaeological data from Crete, at least, have been found in sufficient profusion to leave little doubt that its ancient inhabitants were a composite nation. Their ancestors appear to have come from Syria and Anatolia and were closely related to the Hittites and to the earliest invaders of India. At the same time there is evidence—from the fact that their artists depicted them with long heads, short, slender bodies, and dark, wavy hair—that they bore a relationship to the Egyptians. Although they occupied Greek territory, they were not Greeks at all in the historic meaning of that name. The true Greeks, as we shall presently see, were of altogether different ethnic origin.

The Aegean civilization was probably one of the freest and most progressive in all the Near Orient. The ruler was known by the title of Minos, which was roughly the equivalent of Pharaoh (hence the name *Minoan* which is sometimes applied to the civilization). That it was a title of divinity is shown by the fact that it was occasionally used as if it referred to a god. But the Minos was no bristling war lord like the Assyrian and Persian kings. His professional army was

small; he had no great fortified cities; nor is there any indication of his use of conscription. He did have a large and efficient navy; but this was for defense against external attack and for the protection of trade, not to overawe the citizens at home.

The liberal character of Aegean government

On the other hand, there was some regimentation of industry; whether benevolent or not is unknown. The king was the chief capitalist and entrepreneur in the country. The factories in connection with his palace turned out great quantities of fine pottery, textiles, and metal goods. Some of their products were intended to supply the needs of the court, but plenty were sold at home and abroad for profit. Although private enterprise was not prohibited, the owners of smaller establishments were naturally at some disadvantage in competing with the king. Nevertheless, numerous privately owned factories did flourish, especially in cities other than the capital, and agriculture and trade were also in private hands. Gournia, for example, had its foundries for the manufacture of bronze, Therasia its olive-oil refineries, and Phaistos its potteries. It must be understood that these establishments, both royal and private, were factories in nearly every modern sense of the word. While they did not use power-driven machinery, they were engaged in large-scale production, and there was division of labor and centralized control and supervision of workers. The hundreds of women employed in the royal textile factory worked under the supervision of the queen.

Industry partly state controlled

The Aegean people of nearly all classes appear to have led happy and fairly prosperous lives. If slavery existed at all, it certainly occupied a very unimportant place. The houses in the poorest quarters of great industrial towns such as Gournia were substantially built and commodious, often with as many as six or eight rooms, but we do not know how many families resided in them. If we can judge from the number of inscriptions found in the homes of the common people, literacy was well-nigh universal. Women enjoyed complete equality with men. Regardless of class there was no public activity from which they were debarred, and no occupation which they could not enter. Crete had its female bull fighters and even female pugilists. Ladies of the upper strata devoted much time to fashion. Dressed in their tight-fitting bodices and bell-shaped skirts with flounces which would not have been much out of style in nineteenth-century Europe, they vied with each other for attention in the theaters and at public entertainments of numerous kinds.

Evidences of social equality

The natives of the Aegean area delighted in games and sports of every description. Chess, dancing, running matches, and boxing rivaled each other in their attraction for the people. The Cretans were the first to build stone theaters where processions and music entertained large audiences. But the most popular of all the diversions, as a spectacle at least, was the rodeo or bull-leaping exhibition.

The love of sports and games

This sport was not so cruel as modern bullfighting, since there was no picador to torture the bull or matador to kill him. As soon as the animal was sufficiently infuriated to charge head down, an athlete would seize him by the horns, leap upon his back, turn a few somersaults, and then jump to the ground. No doubt these exhibitions were somewhat lacking in the tragic beauty which Ernest Hemingway sees in the Spanish bullfight, but they were decidedly more humane.

The Aegean religion

The religion of the subjects of Minos was a medley of strange characteristics. First of all it was matriarchal. The chief deity was not a god but a goddess, who was the ruler of the entire universe —the sea and the sky as well as the earth. All existing things were emanations from her. But it was especially as the embodiment of fecundity, and therefore as the source of all life, that she attained her chief significance. In this capacity she was often represented as a madonna with bared breasts, carrying the holy child or tenderly watching over him. The serpent and the dove were her constant companions, possibly as active symbols of her generative power or of her qualities of wisdom and mercy. Originally no male deity appears to have been worshiped, but later a god was associated with the goddess as her son and lover. Although, like the divine sons in several other religions, he died and rose from the dead, he was never regarded by the Cretans as of particular importance.

The mother goddess

In the second place, the Aegean religion was thoroughly monistic. The mother goddess was the source of evil as well as good; but not in any morbid or terrifying sense. Though she brought the storm and spread destruction in her path, these served for the replenishment of nature. Death itself was interpreted as the condition prerequisite for life. Whether the religion had any ethical purposes is unknown. Its followers undoubtedly looked forward to a happy survival in another world, although not necessarily as a reward for good deeds done on earth. The dead were buried with solicitous care and provided with nearly every accessory that would enhance their comfort and pleasure. Food and drink, toilet articles, lamps, razors, mirrors, and games were the principal articles furnished for the deceased of all classes and ages. In addition, the hunter was given his spear, the sailor a miniature of his favorite boat, children their toys, and rich men their servants in effigy. No signs of any belief in a place of future punishment have ever been found.

Symbols and sacrifices

Other rather curious features included the worship of animals (the bull, the stag, and the minotaur, which was half bull and half man); the worship of sacred trees; the veneration of sacred objects which were probably reproductive symbols (the double-axe, the pillar, and the cross); and the employment of priestesses instead of priests to administer the rites of the cult. By far the most important act of worship was sacrifice. At the great religious festivals hundreds of animals and large quantities of grain and fruit were brought as

grateful offerings to the goddess and her son. It is doubtful, however, that these sacrifices represented in any sense an atonement for sin. They were intended rather to provide sustenance for the deities and to bring man into sacramental fellowship with them. The common Oriental idea of the scapegoat sacrifice, or the shedding of blood for the remission of sins, would appear to have been foreign to the Aegean temperament.

Cretan writing and scientific achievements

For nearly eighty years after the discovery of the Aegean civilization, its system of writing remained one of the enigmas of history. About 1950, however, the Czech scholar Bedrich Hrozny, who had already deciphered Hittite writing, succeeded in unlocking the mystery of Cretan inscriptions. He showed that this dominant Aegean people produced not only one system of writing but three—a hieroglyphic script and two linear scripts, which were used in successive periods. In 1953 an English scholar, Michael Ventris, announced that he had discovered a method which would enable him to decipher the second of these scripts, Linear Script B. In 1957 Dr. Cyrus H. Gordon, of Brandeis University, concluded that Linear Script A was Akkadian, written with a Cretan variation. But all of the inscriptions found thus far are records of business transactions, inventories, and the like. No literary texts have yet been unearthed. It is impossible therefore to tell whether any literature or philosophy had been written. The problem of scientific achievements is easier of solution, since we have material remains for our guidance. Archaeological discoveries on the island of Crete indicate that the ancient inhabitants were gifted inventors and engineers. They built excellent roads of concrete about eleven feet wide. Nearly all the basic principles of modern sanitary engineering were known to the designers of the palace of Knossos, with the result that the royal family of Crete in the seventeenth century B.C. enjoyed comforts and conveniences which were not available for the wealthiest rulers of Western countries in the seventeenth century A.D.

Aegean art

If there was any one achievement of the Aegean people which appears more than others to emphasize the vitality and freedom of their culture, it was their art. With the exception of the Greek, no other art of the ancient world was quite its equal. Its distinguishing features were delicacy, spontaneity, and naturalism. It served not to glorify the ambitions of an arrogant ruling class or to inculcate the doctrines of a religion, but to express the delight of the ordinary man in the world of beauty around him. As a result, it was remarkably free from the retarding influence of ancient tradition. It was unique, moreover, in the universality of its application, for it extended not merely to paintings and statues but even to the humblest objects of ordinary use.

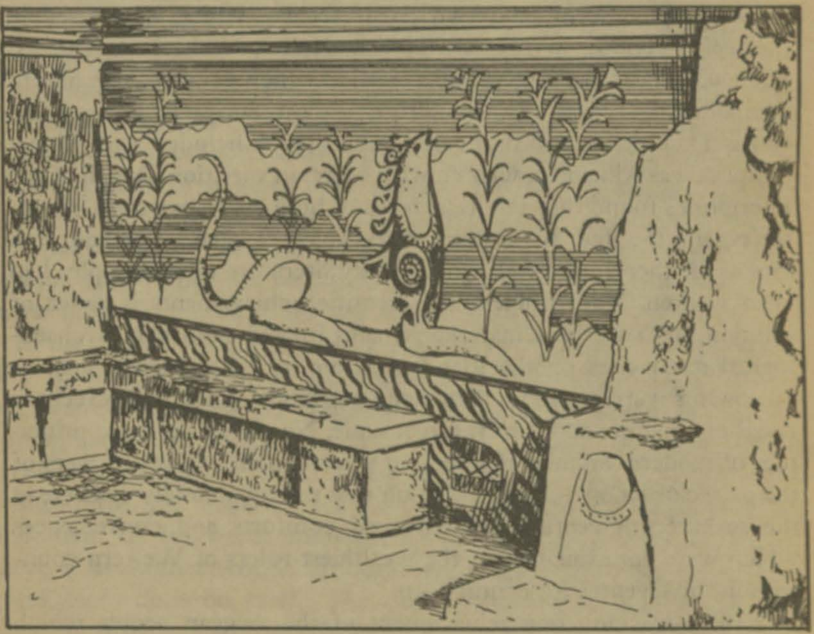
Of the major arts, architecture was the least developed. The great palaces were not remarkably beautiful buildings but rambling structures designed primarily for capaciousness and comfort. As more

Architecture

and more functions were absorbed by the state, the palaces were enlarged to accommodate them. New quarters were annexed to those already built or piled on top of them without regard for order or symmetry. The interiors, however, were decorated with beautiful paintings and furnishings. The architecture of Crete may be said to have resembled the modern international style in its subordination of form to utility and in its emphasis upon a pleasing and livable interior as more important than external beauty.

Painting

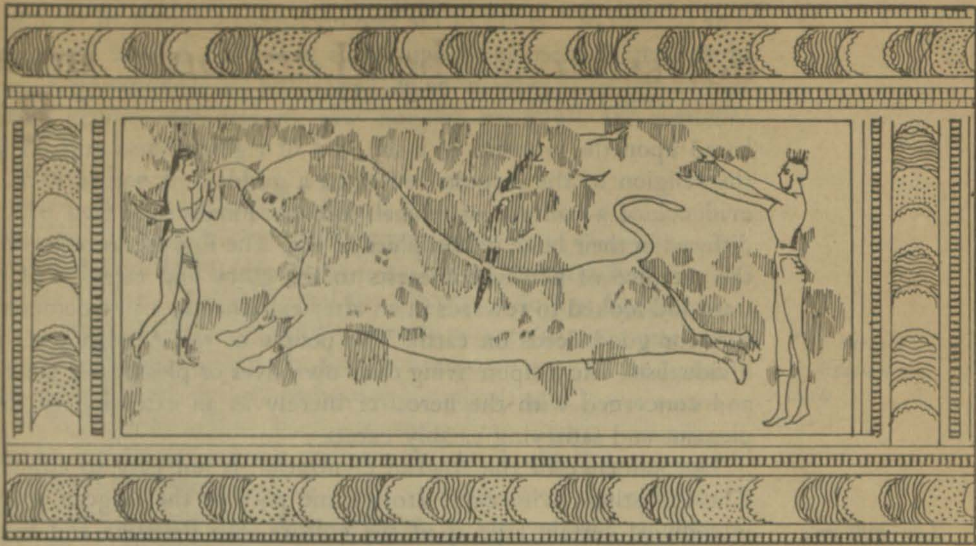
Painting was the art supreme of the Aegean world. Nearly all of it consisted of murals done in fresco, although painted reliefs were occasionally to be found. The murals in the palaces of Crete were by all odds the best that have survived from ancient times. They re-



Throne Room in the Palace of Minos. The throne and bench are original; the fresco has been restored in accordance with fragments found on the site which are now in the Candia Museum on the island of Crete. A remarkable grace characterizes the lilies and the body and head of the mythical animal.

vealed almost perfectly the remarkable gifts of the Minoan artist—his instinct for the dramatic, his sense of rhythm, his feeling for nature in her most characteristic moods. He loved to depict the furious gallop of the frightened deer, the stealthy tread of the cat stalking its prey in the weeds, or the graceful bending of the lily on its slender stem.

Sculpture and the ceramic and gem-carving arts were also developed to a high stage of perfection. The sculpture of the Cretans



Scenes from the Bull Ring. Cretan painting, about 1500 B.C. Evident are the Cretans' devotion to sport and the skill and agility of their athletes. The body and horns of the bull, however, are exaggerated as are the slenderness of the athletes and their full-face eyes in profile heads.

Sculpture, pottery, and engraving

differed from that of any other people in the ancient Orient. It never relied upon size as a device to convey the idea of power. The Cretans produced no colossi like those of Egypt or reliefs like those of Babylonia depicting a king of gigantic proportions smiting his puny enemies. Instead, they preferred sculpture in miniature. Nearly all of the statues of human beings or of deities that the archaeologists have found are smaller than life-size. Neither was the plastic art of the Aegean essentially propagandistic. Its dominant purpose, as in the case of painting, was to express the individual's delight in the color and drama of his environment. Likewise, the delicately painted pottery, thin as eggshell, the skillfully engraved and inlaid daggers and knives, and the gems and seals of infinitely varied design revealed an almost incredible mastery of materials and respect for the form and beauty of nature.

Was the Aegean civilization an offshoot of the Egyptian?

Much has been written about the significance of the Aegean civilization and its relation to the surrounding cultures. By some historians it is regarded as a mere offshoot of the civilization of Egypt. A number of facts can be adduced to support this view. Both nations were ethnically similar. Their governments were alike in their theocratic character. Both societies contained elements of matriarchy and economic collectivism. But that is about as far as the comparison can be carried. The differences were just as marked. The Aegean people built no great pyramids or magnificent temples. Only in painting did their art resemble that of Egypt very closely.

The systems of writing of the two civilizations appear to have been of entirely independent origin, as is evidenced by the fact that a knowledge of Egyptian helps very little in deciphering Cretan. Whereas the Egyptian religion was an elaborate ethical system based upon the worship of a sun god of righteousness and justice, the religion of the Aegean venerated a goddess of nature with no evidence of a concept of ethical purpose. Finally, the two peoples differed in their basic philosophies of life. The Egyptians believed in the sacrifice of personal interests to the glory and eternity of the state and looked to rewards in an after-existence as a just compensation for good deeds on earth. The people of the Aegean were individualists, intent upon living their own lives of pleasurable activity and concerned with the hereafter merely as an extension of their pleasant and satisfying earthly careers.

The influence of the Aegean civilization

The influence of the Aegean civilization is not easy to estimate. The Philistines, who came from some part of the Aegean world, introduced certain aspects of the culture into Palestine and Syria. There is reason to believe that various elements of Phoenician art and the Samson legends of the Old Testament were really acquired from the Philistines. It is probable also that the religious and aesthetic traditions of the Cretans and perhaps something of their spirit of freedom influenced the Greeks. But a considerable part of the Aegean civilization was lost or destroyed. Following the downfall of Knossos a dark age began which lasted for nearly four hundred years. The conquerors were barbarians who were unable to appreciate much of the culture of the people they conquered and consequently allowed it to perish.

Importance of the Aegean civilization for the modern world

Despite its limited influence the Aegean civilization is not without importance for the student of history; for it was one of the few in ancient times which assured to even its humblest citizens a reasonable share of happiness and prosperity, free from the tyranny of a despotic state and a crafty priesthood. The apparent absence of slavery, brutal punishments, forced labor, and conscription, together with the substantial equality of classes and the dignified status accorded to women, all point to a social regime in striking contrast with those of the Asiatic empires. If additional evidence of this contrast is needed, it can be found in the art of the various nations. The Aegean sculptor or painter gloried not in portraying the slaughter of armies or the sacking of cities but in picturing flowery landscapes, joyous festivals, thrilling exhibitions of athletic prowess, and similar scenes of a free and peaceful existence. Last of all, the Aegean civilization is significant for its kinship with what we often think of as the modern spirit. This is clearly exemplified in the devotion of the people to comfort and opulence, in their love of amusement, in their individualism, zest for life, and courage for experimentation.

CHAPTER 8 Ancient Hindu Civilization

1. The Vedic Age in India

The earliest civilization of India

Remains of Neolithic and of early metal-age cultures have been discovered both in Hindustan and the Deccan. The first highly advanced civilization began its history as early as 3250 B.C. and reached its peak between 2800 and 2500 B.C. It covered an area in the Indus valley at least as large as Italy and possibly much larger. It was essentially an urban civilization, with a cosmopolitan society, bustling enterprises, and extensive trade with the outside world. Two metropolitan centers have thus far been uncovered—Mohenjo-Daro, about 300 miles from the seacoast, and Harappa, about 400 miles farther up the river. Both were durably constructed of brick and laid out in accordance with ambitious and intelligent planning. Private houses were solidly built of brick and equipped with bathrooms which drained into sewer pipes running underneath the principal streets and discharging into the river. Evidences of intellectual achievement are scanty, although proofs are available that standards of measurement and a system of writing had been developed. The latter was mainly pictographic and bore some resemblance to Sumerian cuneiform. It has not yet been deciphered. Several of the arts reflected a high degree of skill, especially the fabrication of small objects for personal adornment. Some examples of sculpture, also, indicate a talent for grace and naturalness. The religion of this early civilization centered upon the worship of fertility deities, notably a mother goddess. The principal rite was animal sacrifice.

The coming of the Aryans

For reasons unknown the Indus valley civilization disappeared from the scene of history about 1500 B.C. Possibly a plague or flood or some other natural disaster supplies the answer. Whatever the cause, the civilization went down to so complete an oblivion that no one remembered its existence until evidences were unearthed by archaeologists about thirty years ago. Shortly before this great disaster India was invaded by seminomadic tribes who were destined to be the founders of a more enduring civilization. These were the so-called Aryans,[1] or Indo-Aryans, who came in by way of Afghanistan through the passes of the Hindu Kush Mountains. For many centuries the Aryan influence was confined to northern India, and here it developed the distinctive Hindu pattern of society, culture, and religion. Though the Aryan (Indo-European) languages never

[1] "Aryan" was the name by which these invaders identified themselves. The theory of a distinctive Aryan race, expounded from time to time by various propagandists, has been exploded. In current usage the term "Aryan" is properly applied only to a family of related languages (the Indo-European group).

became dominant in the south, they are the most widely spoken group of languages in India today.

Scantiness of the early records

For some 1500 years following the Indo-Aryan invasions the political history of India is largely unknown. The absence of reliable historical records for such a long period of time, among people who achieved a variegated, colorful, and highly intellectual civilization, is extraordinary. The scarcity of historical information is not entirely accidental, although it is partly accounted for by the fact that the Indo-Aryans had no system of writing until about 1000 years after their settlement in India. A more potent cause was the character of their civilization itself and especially of their philosophy, which stressed the importance of timeless qualities and the relative insignificance of temporal events and conditions. When they looked back to the past, they were inclined to give free scope to their imagination and to reckon in terms of vast eras and aeons, symmetrical but fantastic, extending to millions or even billions of years. The failure to produce factual chronicles does not mean that no changes or exciting events occurred. On the contrary, the available evidence suggests the normal amount of conflict, turmoil, and upheaval. But it is almost impossible to separate fact from fable, and in so far as the political history can be reconstructed it is largely repetitious and devoid of impressive achievement.

Vedas and epics

The sources of information for early Indo-Aryan civilization are almost exclusively in literary tradition. The oldest literary monument is the collection of religious poems and hymns called the *Vedas*. No one knows when they were composed. The oldest portions may have originated as early as 3000 B.C., and they were passed on orally without any written aids whatsoever until several centuries after the collection was complete. The *Vedas* reflect the culture of the primitive Aryan communities in the upper Indus valley and the "Middle Land" between the two rivers, or roughly the period from 2000 to 800 B.C., which is accordingly called the Vedic age. The latter portion of the *Vedas*, however, shows that profound changes had taken place during these centuries. The second major literary landmark consists of two long epic poems, the *Ramayana* and the *Mahabharata*. Like the *Vedas*, and in spite of their tremendous bulk, the epics were preserved by memory and oral repetition for many generations, but they reflect a different set of conditions, customs, and beliefs from those most typical of the *Vedas*. The epics reveal that by the close of the Vedic age Indo-Aryan culture had been transformed into a complex and stratified social and religious system. It had become Hinduism.

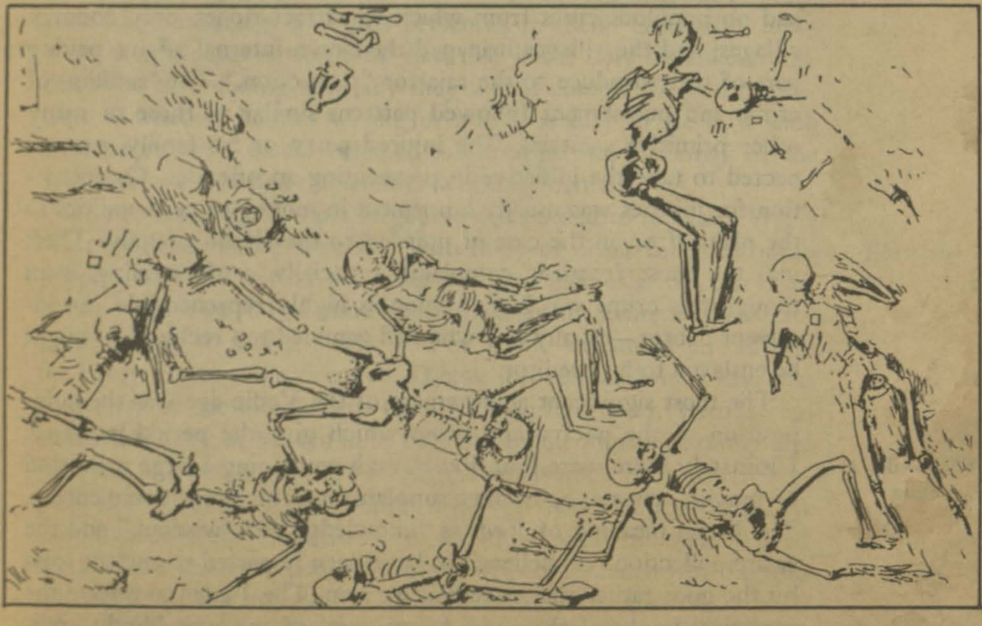
Economic life in the Vedic period

In the early Vedic period the Indo-Aryan tribes had a simple, largely pastoral economy. They cultivated barley and probably other grains, using a wooden plow drawn by bullocks. They ate the flesh of sheep, goats, and oxen, usually at the time of sacrificing these animals to the gods, but their favorite foods were dairy products—milk,

cream, and ghee (melted butter). Cattle were the most prized possessions and served as a medium of exchange. Apparently they were not yet worshiped nor was their slaughter forbidden. Domesticated animals also included the horse, used to pull the war chariot and also for chariot racing, of which sport the Aryans were very fond. All the



Seal from Mohenjo-Daro, 2500 B.C. Bull seal, probably used as a signature.



Skeletons at Mohenjo-Daro. Although the downfall of this culture is a mystery, a massacre may have been a factor.

common handicrafts, including metal work, were practiced. Music, both vocal and instrumental—with flutes, drums, cymbals, and stringed lutes or harps—was a popular source of entertainment, as was dancing. Gambling with dice was a national pastime and seems to have come close to being a national obsession.

Social life in the Vedic period

In its typical features this early Indian society was vigorous and uninhibited, its members delighting in song and dance, in feasting, carousing, and feats of strength. Warfare was frequent, and many stories have been preserved of the incredible prowess of strong-armed heroes. The social unit was the patriarchal family, which does not necessarily imply that the father exercised tyrannical power over his dependents. His functions were religious as well as economic. The wife assisted her husband in sacrifices at the domestic hearth, and women apparently enjoyed almost equal freedom with men. Polygamy was permissible, but such later Hindu institutions as the immolation of a widow upon her husband's funeral pyre (*suttee*) and child marriage were completely unknown.

Political institutions

As might be expected, political and legal institutions were rudimentary among the primitive Aryans. Each tribe had its king (raja), whose chief function was to lead his warriors in battle. Associated with the king in ruling was an assembly. Its composition and duties are not at all clear, but its existence suggests a limitation upon the royal authority. Some of the tribes were organized as aristocratic republics rather than hereditary monarchies, with government resting with the heads of the clans or an elected raja. In the early days the raja's powers could hardly have been awe-inspiring in any case. He had no populous cities from which to extract riches, only country villages; and the villages managed their own internal affairs, paying part of their produce to the raja for "protection." The handling of crime and punishment followed patterns similar to those of many other primitive societies. The injured party or his family was expected to take the initiative in prosecuting an offender. Compensation for injuries was usually a payment in money or commodities to the plaintiff or, in the case of murder, to the victim's family. Theft was the most frequent complaint, especially cattle stealing, even though this crime was looked upon as highly reprehensible. An insolvent debtor—usually one who had gambled too recklessly—might be enslaved to his creditor.

The Vedas *as literature*

The most significant achievement of the Vedic age was the composition of the poetry and prose which give the period its name. Ultimately there were four *Vedas*, each containing a large collection of prayers, chants, or hymns, supplemented by prose commentary. The literal meaning of *Veda* is "knowledge" or "wisdom," and the entire collection was believed to have been imparted to ancient seers by the gods rather than invented by men. The *Vedas* constitute the canonical books of the Indo-Aryan—and of the later Hindu—religion; they were considered divinely inspired and uniquely sacred, as

were the Hebrew and Christian Scriptures by the members of those faiths. However, because the early Aryans were illiterate, their sacred books were said to have been "heard" rather than "revealed." The *Vedas* cover an amazing variety and range of subjects. Some portions are litanies intended to be chanted by priests during a sacrifice. Others are catalogues of spells and charms, including alleged remedies for fever and snake bite, love formulas, and recipes for exterminating one's enemies. Still others incorporate customs and folklore or display a profound insight into philosophical or religious truth. Although much of the content of the *Vedas* is repetitious and monotonous, in vividness and imagination the best verses deserve to rank with the *Iliad* of Homer.

Religion of the early Aryans

The religion of the early Aryans as illustrated in the *Vedas* was a comprehensive polytheism, with little ethical significance. Their gods —*deva*, or "shining ones"—were the forces of nature or personifications of these forces. No images or temples were erected, and worship consisted chiefly in performing sacrifices to the gods. Grain and milk were sacrificed, animal flesh was burned upon the altars (the worshipers themselves eating the flesh), but the choicest offering was *soma*, an alcoholic beverage fermented from the juice of a mountain plant. The gods were looked upon in much the same way as the Olympian deities were regarded by the Greeks. They were conceived as splendid and powerful creatures, with human attributes but immortal as long as they drank the *soma* juice, and on the whole benevolent. It was assumed that they would reward men out of gratitude for the homage and gifts presented to them. Gradually, however, the insidious notion took root that if the holy rites were conducted with unfailing accuracy they would compel the god to obedience, whether he was willing or not. It is easy to see how such an interpretation would enhance the prestige and authority of the priests who controlled the wonder-working formulas.

The roster of gods

The roster of gods was a large one and tended to increase. While several deities can be identified with those of other Indo-European peoples, they did not have as clear-cut personalities as the Greek or Norse gods. The Indian mind ran toward specialization and abstraction, tending to invent a new god or a new variant of an old god for every conceivable occasion. Dyaus, lord of the bright sky, was equivalent to the Greek Zeus (though less important). Varuna represented the sky or heaven in its capacity to encompass all things and hold the universe together. He was called Asura, a term which suggests close kinship with the supreme Persian deity, Ahura-Mazda. At least five different divinities were identified with the sun. One of them, Mitra, shared a common origin with the Persian Mithras, but this deity did not assume the prominence in India that Mithras attained in Persia and the West. Surya was the sun's golden disk, Pushan embodied its power to assist vegetation and animal growth,

and Vishnu personified the swift-moving orb that traverses the sky in three strides.

The most popular deity of all in Vedic times was Indra, whose original significance is uncertain. He was alleged to have benefited mankind by slaying a malignant serpent, the demon of drought, thus releasing the pent-up waters to refresh the earth. Also, it was said, he discovered the light, made a path for the sun, and created lightning. He was chiefly honored as a mighty warrior and god of battle, the slayer of demons and of the "black-skinned" enemies of the Aryans. Indra was supposed to be particularly fond of *soma*, which fired his blood for combat, and he was reputed to be able to drink three lakes of this potent fluid at one draft while devouring the flesh of 300 buffaloes. *Soma*, the sacred liquor, was also deified, as was the sacrificial fire, Agni. Agni was conceived both as a god and as the mouth of the gods or as the servant who carried their savory food offerings up to the heavens for them.

Spiritual and ethical elements

Although religion in the Vedic age was hardly spiritual, it contained traces of such a quality. Some hymns to Varuna are remarkable for their devoutness and ethical content. Varuna is described as the great regulator of the universe, who keeps the rivers in their courses and the sun and planets in their proper orbits. He is also pictured as the upholder of rules and ordinances for both gods and men, capable of binding sinners with fetters. To him were addressed prayers for forgiveness of sin. Offenses likely to incur divine wrath included not only infractions of religious taboos but also violations of the moral code, such as adultery, witchcraft, gambling, and drunkenness. However, despite intimations of a belief in life after death, by far the greater emphasis was placed upon the enjoyment of life here and now.

The Brahmanas

Associated with each of the *Vedas* is a prose manual called a *Brahmana* because it was for the instruction and assistance of the brahmans (priests) who officiated at the sacrifices. While the Vedic hymns are generally unaffected and artless, the *Brahmanas* betray a shrewd calculation on the part of the custodians of the sacred traditions and also illustrate the tendency of such traditions to degenerate into empty mechanical formulas. A modern Indian scholar describes the *Brahmanas* as "an arid desert of puerile speculations on ritual ceremonies," and even as "filthy and repulsive," with a morality "no higher than that of primitive medicine-men."[1] The greed and arrogance of the brahmans is illustrated by such assertions as that judgment should always be awarded to a brahman in every dispute with a layman and that murder is not actually murder unless the victim is a brahman.

In view of the decadent tendencies evident in the *Brahmanas* it

[1] B. K. Ghosh, in *The History and Culture of the Indian People*, Vol. II, *The Vedic Age*, pp. 225, 418.

is all the more notable that the concluding portion of Vedic literature is of an elevated philosophical character, giving proof both of intellectual maturity and of ethical and spiritual insight. Evidently, side by side with the naïve popular cults and with the mechanical rituals of priestcraft had grown up a tradition of skepticism and bold speculation, which attempted to delve beneath the surface of sense experience and formulate answers to eternally recurring questions. This concluding portion, called *Vedanta* ("end of the *Vedas*"), comprises the famous *Upanishads*, of which there are some 200. The *Upanishads* (the word means a "sitting down near" or session with a teacher) are treatises or rambling discourses in prose and poetry, dealing with the nature of being, man, and the universe. Their content varies in subject matter and in quality of thought, ranging from the trivial and absurd to the sublime. Scholars and philosophers from the Occident as well as from the Orient have long been attracted by the subtle probing, the sweeping imagination, and the idealistic concepts evident in the *Upanishads*, the best of which are not inferior to the products of Greek philosophical genius. Although part of the *Vedas*, the *Upanishads* largely ignore the popular mythology of the Vedic hymns and also constitute a challenge to the presumptuousness of the brahmans and their version of religion as consisting in adherence to ritual and ceremony.

The Upanishads

While the *Upanishads* do not fall into a single pattern of thought, their most essential philosophical teachings are fairly consistent. The key concepts, which may be described as idealistic, monistic, and pantheistic, are: (1) the supreme reality of the World Soul or Absolute Being; (2) the unreality of the material world; (3) transmigration, or the rebirth of individual souls; and (4) the attainment of serenity through escape from the cycle of recurring births by union with Absolute Being. Evil and suffering are explained on the ground that they are incidental to matter and material creatures. But matter is held to be an illusion (*maya*); the only true reality is the soul or spirit. If the soul could manage to disentangle itself from matter (which actually is only an appearance anyway), it would be free from discord and suffering. Not only does life in the flesh entail sorrow and pain, but, according to this philosophy, death fails to provide relief because the soul will be born again into another body. In developing the theory of an endless chain of births, the philosophers of the *Upanishads* insisted that the process was not purely accidental and uncontrollable. They taught that a person's conduct in life determined the type of body and condition which he would experience in his next incarnation. He might go down in the scale—even to the animal or insect level—or he might go up—to the state of a noble, king, or saint. This is the *karma* doctrine, which holds that actions, thoughts, and motives bear fruit. It resembles the Christian teaching, "Whatsoever a man soweth, that shall he also reap"—except that the retribution or

Philosophy of the Upanishads

reward for actions is held over to another earthly existence. However, if it is assumed that all physical existence is unsatisfactory and illusory, obviously there is not much to be gained from moving a few rungs up the ladder of human wretchedness. Hence the *Upanishads* taught that preferable even to the faithful performance of *dharma* (moral uprightness and the conscientious discharge of one's duties) was a deliberate break with the habits and engagements which lead to the renewal of births. Separation from the chain of births could be achieved only by following a standard of conduct higher than that of righteousness in the ordinary sense of the term. Evil action would produce evil fruit or *karma*, and righteous action would produce good *karma;* but still more desirable was conduct which, being "neither black nor white," could lead to the extinction of *karma* altogether. In other words, only when a person acts with complete disinterestedness, detaching himself entirely from the idea of reward for his merit, do the fetters which bind him to the world of sense begin to loosen and ultimately dissolve. When this happens, the liberated soul attains blessedness or *nirvana*, which does not mean either annihilation or entrance into a heaven, but a union with *Brahma*, the undefinable Universal Soul or eternal Absolute Being.

Pessimism and optimism

The philosophy of the *Upanishads* is pessimistic regarding the world and man's present state, because it depreciates everything material and holds that the natural physical life is a burden. However, it is optimistic as to ultimate ends and as to the possibility of human emancipation. It teaches that there is in every man an indestructible fragment of reality. The basic precept is that *atman* (the individual soul) is actually a part of *Brahma* (the Universal Soul or rational principle which pervades the universe); and that although the soul has been separated from its source it can be reunited with it—not through a miracle but through the individual's own efforts. Moreover, the state of *nirvana*, while a remote goal for the majority, is declared to be attainable during the mortal existence of a sufficiently dedicated person.

2. *The Epic Age: the Emergence of Hinduism*

The Indian epics

Long before the *Vedas* were completed, the two Indian epics were in process of development. The epics were not cast into their final form until sometime between 400 B.C. and 200 A.D., but they refer to events of a much earlier date, and the Epic age overlaps with the Vedic. The epics were composed in Sanskrit, a dialect which is derived from but not identical with that of the *Vedas*, and which came to be regarded as the "classical" form of the Indo-Aryan speech, somewhat as Latin is regarded as classical by the Indo-European peoples of Europe. Furthermore, in spite of the

lack of precise dividing dates, it is clear that the epics represent a later stage of social and cultural evolution than do the *Vedas*.

The Indian epics are comparable to the epic poems of the ancient Greeks in that they celebrate the deeds of legendary national heroes, but they are much more encyclopedic and diffuse than the Homeric poems. The *Mahabharata*, the longer of the two Indian epics, is more than seven times the length of the *Iliad* and *Odyssey*

Content of the epics



Ravana, Rama, and Lakshmana. An Indian painting of the 18th century depicting an incident from the *Ramayana*. Rama, the epic hero, and his brother Lakshmana are fighting against Ravana, the demon king of Ceylon, who carried off Rama's faithful wife Sita.

combined. While the epics treat of bloody conflicts and amazing exploits, they also incorporate quantities of religious lore, and through the centuries they, rather than the *Vedas*, have served as a Bible for the common people. This is partly because the Brahmans imposed restrictions upon the study of the sacred Vedic texts, whereas anyone could listen to a recitation of the epics.

The *Ramayana* has as its central theme the story of Prince Rama, who, with his beautiful wife Sita, was exiled through the jealous intrigue of a wicked stepmother. It relates how Sita was carried off to Ceylon by the demon king of that country and finally recovered by Rama with the help of a monkey general. The narrative is highly artificial as well as fantastic, and easily lends itself to allegorical interpretation. The poem indicates some familiarity with both southern India and Ceylon and provides evidence that Aryan influence, if not extensive conquests, had penetrated into the Deccan. The

The Ramayana

story was reworked many times in later Indian literature and embellished with symbolism. Rama and Sita came to be idealized as the perfect types of manly courage and feminine purity and devotion, respectively, and Rama was traditionally regarded as an incarnation of the god Vishnu. It is possible that the poem may be, in part, an allegory of the progress of agriculture, in which Rama represents the plow and Sita the furrow. (In the epic, after returning to her husband's kingdom she is swallowed up by the earth.)

The Mahabharata

The *Mahabbharata* is just as enigmatic as the *Ramayana*, though livelier in its story and richer in the variety and scope of its subject matter. "If it is not in the *Mahabbharata*, it is not in India," has become a proverb. A narrative core, which gives the poem its name, is the account of a great battle between two related but feuding families, the Pandavas and the Kauravas, of Bharata descent. The "Great Bharata War" probably commemorates a historic battle fought near the modern city of Delhi about 1400 B.C., but the epic version is a tissue of myth and fable. Some scholars believe that the Pandavas (who on the whole are the heroes of the story) were not really kinsmen of the Kauravas but a different tribe altogether, perhaps of Mongolian race. The five Pandava brothers are described as having one wife in common, an obvious reference to the institution of polyandry, which was foreign to the Aryan communities but which is still practiced by the Tibetans. As a chronicle of battle the poetic version is gory enough but full of odd contradictions. Acts of ruthlessness and chicanery are recorded along with examples of exaggerated chivalry and scrupulousness. The god Krishna (supposedly one of the incarnations of Vishnu) takes part in the encounter with rare impartiality—serving as charioteer for one of the Pandava princes but sending his own forces to fight on the other side. The battle is described as raging furiously for eighteen days, by which time practically all the antagonists on both sides have been killed. Finally the five royal Pandava brothers, victorious but the sole survivors of their line, renounce the world and, with their wife and dog, set off for the Himalayas in search of Paradise. Some of the contradictions and inconsistencies in the account can be explained by the fact that the poem was several centuries in the making. Ethical sensibilities and the warriors' code of conduct changed considerably during this period until rough-and-ready practices which were once considered normal came to be looked upon with disapproval.

The Bhagavad-Gita

Interpolated in the story of the great war is a philosophical dialogue which contrasts startlingly with the rapid pace and bloody tone of the main narrative. This passage, which like the rest of the *Mahabbharata* is of unknown authorship, is called the *Bhagavad-Gita* or "the Lord's Song." In form, it is a discourse between the warrior Arjuna and his charioteer Krishna (who represents the god Vishnu), precipitated by Arjuna's reluctance to begin the slaughter

of his relatives when the lines of battle are drawn up. In substance, it is a dramatic and colorful exposition of some of the most fertile ideas of the *Upanishads*, with greater emotional impact because it speaks not in abstractions but in terms of love for a personal god. At the outset of the dialogue Arjuna expresses his aversion to combat, saying flatly that he will not engage in it: "Better I deem it . . . to face them weaponless, and bare my breast to shaft and spear, than answer blow with blow." Krishna assures him that he must fight, not because there is any virtue in it but because as a member of the warrior caste fighting is his duty (*dharma*). Similarly, Arjuna is reminded that both death and birth are only incidents and that the soul is indestructible: "Life is not slain." Soon, however, the conversation proceeds to a penetrating discussion of the value of different types of action, suggestive of Christian arguments over the respective merits of "faith" and "works." Krishna outlines four levels of conduct or four paths to virtue. At the lowest level are good works, prescribed by reason. Better than works of diligence is knowledge: "The right act is less than the right-thinking mind." Still higher is worship or pure devotion, meditation which is above the bonds of sense and "troubled no longer by the priestly lore." But on the very highest level is placed the renunciation of self. The ideal worshiper, while not neglecting his duty, will play his part "with unyoked soul," "with spirit unattached." He acts "unmoved by passion and unbound by deeds, setting result aside"—that is, with no thought of reward either material or spiritual. Although in the dialogue the warrior is enjoined to fulfill his warlike function—with complete indifference to victory or defeat—the *Bhagavad-Gita* verses have been interpreted by some Hindus, including Mahatma Gandhi, as a text for pacifism.

Significance of the epics

Aside from their narrative and philosophical interest, the epics reveal that during the 1000 or 1500 years since the settlement of the Indo-Aryans in India extensive changes had taken place among the people, especially in religion and the organization of society. The carefree, boisterous optimism of the early Vedic period was giving way to attitudes of pessimism, discouragement, and resignation; society, instead of being flexible and largely uninhibited, was tending toward a rigid stratification of functions and privileges. The causes of such marked change are not entirely clear. But whatever the reasons, before the close of the Epic age Indian society had assumed many of the characteristics which have distinguished it down to modern times. Together they make up the culture complex which is Hinduism.

The growth of Hinduism

Popular religion had changed from a simple polytheism to an intricate network of beliefs and rituals with a tremendous hierarchy of gods. The catalogue and ranking of deities and the forms of worship varied from one locality to another and among different strata of the population. With a few exceptions, the more prom-

inent of the early Aryan deities faded into the background as new gods were added to the pantheon with the absorption of local pre-Aryan cults. Eventually the number of divine and semidivine beings accorded recognition ran into the thousands, or possibly millions. Thus, while philosophy was tending toward monotheism, the popular faiths were moving in the opposite direction. Three gods, however, came to be considered as paramount, although without agreement as to their qualities and import. Vishnu, the old solar deity, believed to have had many incarnations, was worshiped under several names. He was still conceived as a benevolent and cheerful god, "the Preserver," representing the creative or formative principle in the universe. Because he was supposed to disapprove of bloodshed, Vishnu received no animal sacrifice but was offered garlands of flowers. Quite different was Shiva, "the Destroyer," who in spite of his frightening aspects has proved to be a more widely favored object of worship than Vishnu. Typically Shiva was pictured as five-faced and four-armed. He was regarded as beneficent in some aspects because destructive force—symbolized by the dance of Shiva—is a necessary agency in the evolution of the world and living forms, but his power could be prostrating. While some devotees of Shiva were ascetics and mystics, among other groups his worship called for bloody sacrifice, and was also associated with a fertility cult employing orgiastic rites. The third and least influential of the major deities was Brahma, a personification of the Absolute Being or World Soul of the philosophers. Representing an abstract principle, Brahma did not seize upon the popular imagination as did Vishnu and Shiva. He was visualized as a tiny figure who could sit on a lotus leaf. This god, however, has stimulated mystic contemplation. The avowed end of the famous *yoga* discipline is to attain a union of the soul with Brahma.

The religion of Brahmanism

In the Western sense of the term, Hinduism is not, strictly speaking, a religion, because it embraces almost every shade of belief and practice from the most primitive and repulsive to the loftiest. It has no creed, no set of dogmas, no single congregation of the faithful, no established church. It assumes that divine truth wears many faces and that the paths to salvation are myriad. But while Hinduism is primarily a social system, Brahmanism can be described as a religion. This refers not to the worship of the god Brahma but to the potent authority of the brahmans or priests. Throughout India the brahmans established themselves as ministrants of the various rites and the recipients of reverence and material compensation. They did not enforce any orthodox creed or crusade against heretics, but they insisted successfully that only they could mediate between gods and men. The chief points of emphasis in Brahmanism as it took root in India came to be: (1) respect for and support of the brahmans; (2) noninjury to animal life, especially cattle (although there are many exceptions to this rule); (3) the inferior

status of women; and (4) acceptance of the regulations of caste.

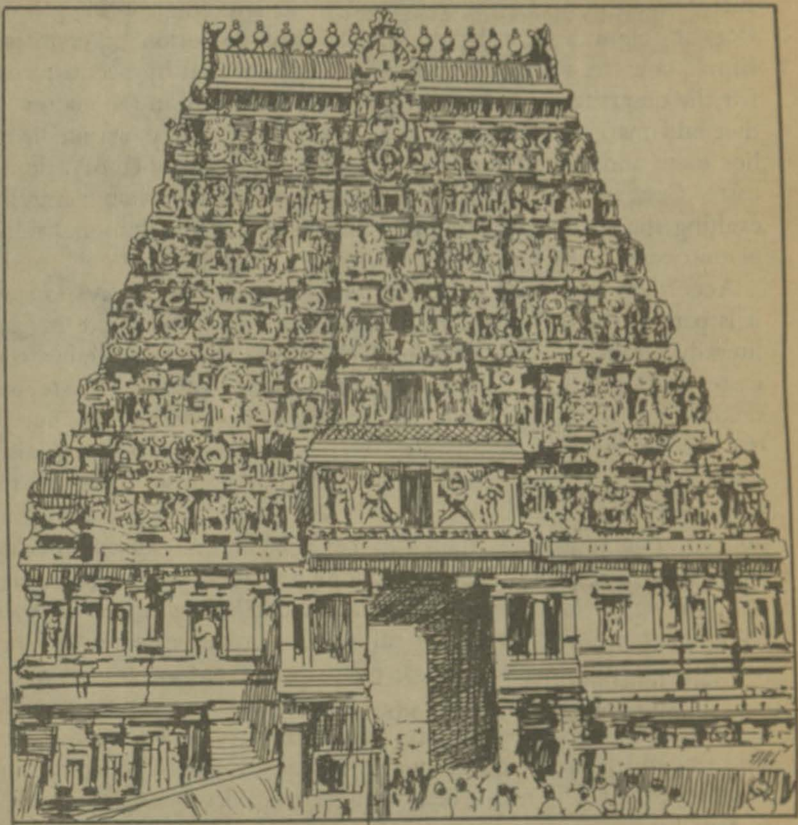
The chief distinguishing characteristic of Hindu religious and social life is the institution of caste, the most rigorous and refined instrument of segregation ever invented. Caste is much more complex than the typical division of a nation into social or economic classes, even when these classes are hereditary. Aside from heredity, membership in a caste is not based upon any single principle nor does it follow a logical pattern. The best definition of caste is a simple one: "A group of families internally united by peculiar rules for the observance of ceremonial purity, especially in the matters of diet and marriage." Typically, a person must marry within his or her caste and should not accept food from a member of a lower caste. Caste is the antithesis of democracy. It is a vast hierarchy, exalting the brahmans at the top and degrading the "untouchables" or outcastes at the bottom of the social pyramid.

The institution of caste

According to orthodox Hindu tradition, caste has always existed; it is part of the order of nature. The word used to denote it (*jat*) literally means "species." Historical evidence, however, shows that caste developed gradually over a long period of time. Caste was unknown to the Indo-Aryan society of the early Vedic age, but by the time of the epics it was already regarded as an ancient institution. Thus the system has probably been operating in India for the past 3000 years, and its origins are lost in obscurity. Its starting point, undoubtedly, was the racial pride of the Aryan conquerors, who were determined to prevent contamination by intermarriage with the supposedly inferior "black-skinned" peoples whom they were fighting and reducing to subjection. In this case the distinction was based on color (*varna*); but as time went on various other criteria entered into the drawing of caste lines, including occupations, religious deviation, migrations from one section of India to another, and later invasions by non-Hindu peoples who could not be expelled but who might be prevented from destroying the Hindu system by assigning them a place within it. In the long run, the establishment of caste on a rigid and comprehensive basis can probably be attributed largely to the exertions of the brahmans in their struggle for a position of dominance over all other groups, a struggle in which they did not scruple to use religious weapons to discomfit their competitors. The keenest rivalry was between the brahmans and the warrior nobles (including rajas). The nobles had the advantage of being recognized wielders of authority backed by force; but the brahmans had the advantage of education, mastery of the sacred *Vedas*, and wonder-working powers in the eyes of the people. Socially the brahmans and nobles were on a par. There are records of brahman kings and of kings or nobles who became skilled in the *Vedas*. But eventually the brahmans won recognition for their claim to the highest rank of all, and the nobles were forced to accept classification as the second caste (*kshatriya*). As the price

The development of the caste system

of their pre-eminence, the brahmans were expected to devote themselves more unreservedly to their religious and educational functions, adopting a modest and mildly ascetic manner of life and leaving political dominion to the *kshatriyas.* However, as tutors and advisers to kings, the brahmans managed to retain considerable political influence.



Dravidian Temple of Nataraja at Chidambaram. The gorgeously sculptured spire is a gem of Dravidian art; the temple is believed to be the oldest in South India.

The major castes

Once the principle of caste was accepted by the leading groups in society, it was not difficult to impose it upon the others. Originating in northern India, the institution was extended among the Dravidians and other peoples of the Deccan as Aryan influence permeated that region. In some sections of northern India there is a close relationship between race and caste; the higher the caste the more closely its members approximate the Aryan physical type. In other sections there is no such correspondence. Many occupational groups or guilds became castes, but division does not always follow vocational lines. Brahmans may, without incurring dis-

approval, engage in a variety of occupations, including comparatively humble ones. At the same time, members of the higher castes avoid tasks which are considered defiling, such as the disposal of corpses, butchering animals, or preparing hides. It is impossible to enumerate precisely the castes of India because the number is enormous and fluctuates from time to time. (At present determined efforts are being made in India to eliminate caste altogether.) Theoretically, there are four great castes with subdivisions: *brahmans* (priests), *kshatriyas* (warriors), *vaisyas* (farmers, herdsmen, and artisans), and *sudras* (laborers, servants, and slaves). Actually, except for the first, these categories have little significance. Probably they once represented the general classes of Aryan society before caste had taken hold; they are much too broad to define caste as it has existed in historic times. The effective divisions are more minute. There are some 1800 subdivisions of brahmans alone, and the total number of castes and subcastes in India has been reckoned at more than 3000.

Effects of the caste system

Undeniably caste has had a stultifying effect upon Indian society. The rules of caste observance are arbitrary, tedious, and time-consuming, especially in the everyday matters of social intercourse and eating. The fear of pollution becomes an obsession. Not only are there varying degrees of uncleanness in food (depending on the ingredients and the method of cooking as well as who has prepared it), but absolute prohibitions on certain foods restrict the diet unduly, impairing the health of the population. With the growth of caste the position of women became steadily degraded. A man might in some cases marry beneath his caste; for a woman to do so was considered shameful. Caste duty for a woman lay in absolute obedience to her father and then to her husband. The deplorable custom of child marriage was introduced, defended with the argument that it saved the girl from the monstrous crime of falling in love with any other man than her future husband. Although girl marriages made it inevitable that there would be a large number of widows, a widow was shamed by the belief that some sin of hers had caused her husband's death. She was forbidden to remarry and could best redeem her reputation by committing suicide in flames on her husband's pyre. The most inhumane feature of caste was the treatment accorded the lowest groups in the scale, especially the "Untouchables," who were considered to be outside the border of even the lowest caste, and therefore hardly human beings at all. In southern India the greatest humiliation of the "Untouchables" took place. Their shadow, it was thought, would pollute a well. They were required to live in segregated quarters and to warn people of their approach by uttering cries.

It may be wondered why such an oppressive system has been endured by the people of India for tens of centuries. That it has so endured is a testimony to the toughness of social institutions, how-

ever eccentric, once they have become established. Eventually caste came to be looked upon as a normal and necessary arrangement, especially as it was hedged about by religious sanctions. Particularly effectual were the twin beliefs: *karma* and the transmigration or rebirth of souls. These concepts, which were given an idealistic interpretation by the philosophers of the *Upanishads*, served in the popular imagination to explain and justify caste. If a person was born into a high caste he was thought to be receiving his reward for meritorious behavior in a previous existence. He had produced good *karma*, which carried him upward on the ladder. Similarly, a member of the despised castes was supposed to have incurred his lot because of misdeeds in a previous incarnation. Unfair as the distinctions of caste seemed to be, they were accepted as a just and precise recognition of the individual's deserts. The person who suffered abuse was told to blame only himself and to strive for perfection within the prescribed limits of his present caste in order that his condition would be improved the next time his soul returned to earth. Since it was possible to go either up or down in the succession of births, patience, diligence, and conformity became supreme virtues. Devotion to duty and the certainty of retribution—*dharma* and *karma*—were the cement which held the caste structure together. Even though caste may have originated in the scheming of brahmans, it finally received general support, and each caste became jealous of its peculiar privileges and responsibilities.

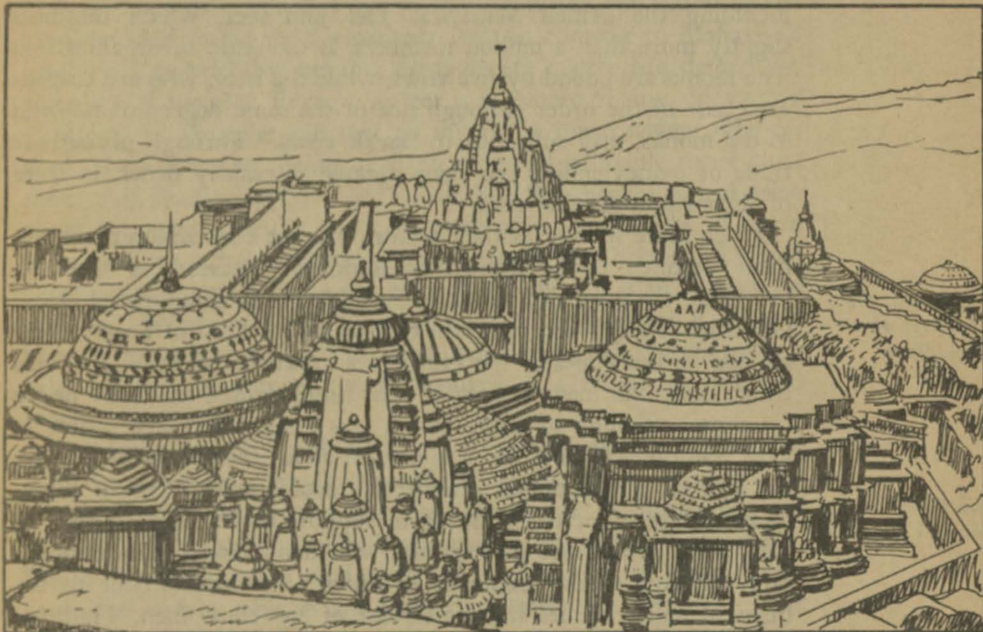
Caste and religion

3. Reform Movements: the Rise of Buddhism

The revolt against Brahmanism

In the sixth century B.C. the stratification of society and the hardening of religious ritual provoked a simmering discontent that found an outlet in several protest movements, led by members of the nobility. Because these protests were directed against the extravagant claims of the brahmans, they assumed at the outset a heretical or even antireligious form. Most of them proved to be only temporary, but two resulted in philosophical and religious schools of enduring influence—Jainism and Buddhism. There were many parallels between these two movements. They originated in the same section of India, north of the Ganges in eastern Hindustan, and the leader of each was a member of the noble or *kshatriya* caste. Each repudiated the authority of priests and *Vedas*, rejecting all the paraphernalia of religion and replacing it by a system of philosophy. At the same time each was ethical and reformist, attempting to provide moral and personal satisfaction to its adherents. Each drew heavily upon the background of Hindu philosophic tradition and formulated goals which, though original in form, were not alien to the spirit of this tradition. And, ironically, each finally turned into a religion, Jainism taking its place within Hinduism, and Buddhism becoming a separate faith. Although

Buddhism carried within itself many elements of Hindu thought, it ultimately obtained its widest following in Asiatic lands outside India and practically disappeared in the country of its birth. However, Buddhism flourished in India for a thousand years after the life of its founder; it helped to liberalize Hinduism and to keep it from being an agency of unlimited exploitation in the hands of the brahmans. Buddhism also contributed heavily to Indian architecture and sculpture, and the Buddhist sacred texts were the first works committed to writing in India.



Jain Temples on Girnar Mountain. These exhibit the lavish sculpture characteristic of Indian architecture.

Jainism

Jainism is associated with a figure known as Mahavira ("Great Hero"), who, although probably not its founder, gave it a distinctive form. Mahavira expounded a complex metaphysics which embraced the notion that not only living creatures but almost every object possesses a soul. Employing the familiar concepts of transmigration and *karma*, he held that the soul when attached to matter is in bondage and that it will never be content until freed from and entirely independent of the physical body. The purport of his message was to point out the way to the soul's liberation. Insisting that prayers and worship were of no avail, he prescribed a course of mental and moral discipline, the highest stage of which was withdrawal into a state of meditation with complete denial of the claims of the flesh. The exalting of extreme asceticism remained one of the chief characteristics of Jainism, and particular honor was reserved

for the zealot who was able to carry self-denial to the point of starving himself to death, as a number of Jain saints are reputed to have done. Another cardinal emphasis among the Jains (derived from their animistic belief in a multiplicity of souls) is the doctrine of *ahimsa*, or the necessity of refraining from injury to any living creature. This doctrine has led to commendable efforts to prevent cruelty to animals, although it has sometimes been carried to ludicrous extremes in attempting to protect even pests and vermin. Surrounded by the atmosphere of Hinduism, the Jains relinquished their early antireligious tenets, instituting prayers to various deities, including the deified Mahavira. The Jain sect, which numbers slightly more than a million members, is monastic in organization. The monks are bound by five vows, while the laity, who are considered part of the order although not of the same degree of holiness as the monks, may subscribe to "small vows." Through plying the trade of moneylending the Jains became a wealthy order, in spite of their rigorous asceticism.

Gautama: the founder of Buddhism

Much more significant than Jainism was the contemporary movement destined to be known as Buddhism because its founder, Gautama, was accorded the title of Buddha, "the Enlightened One." Gautama (*ca.* 563–483 B.C.) was the son of the head of a small state located on the slopes of the Himalayas in what is now Nepal. This tribal state, like many others of that time, elected its ruler; hence Gautama, although of noble blood, was not a hereditary prince as later tradition claimed. Little is known about the events of his life, but legends have supplied innumerable details, most of them miraculous. There is factual evidence to support the conclusion that he was one of those rare personalities who deliberately relinquished a safe and comfortable existence in order to devote himself to the quest of higher values and the service of his fellow men. Tradition has it that at the age of twenty-nine he left his sumptuous abode in the middle of the night after a fond glance at his young wife and infant son, cut off his hair, and sent back his jewels and fine clothes to his father. Then came years of wandering and disappointment in which he found no answer to the problem that vexed him—the cause and cure of human suffering. After studying philosophy with the brahmans he concluded that this was a vain pursuit. Next, it is said, he spent six years practicing an extreme asceticism, until his body had almost wasted away. This course he also abandoned as leading only to despair. The climax of his life came when, discouraged and weary, he sat down under a large Bo tree to meditate. Suddenly he had an overwhelming experience, a revelation or a flash of insight in which he seemed to penetrate the mystery of evil and suffering. Henceforth he was free from doubts, but, instead of retiring to enjoy his state of Enlightenment, he determined to teach others how they might also secure it. For the next forty years until his death at the age of eighty, he wandered through the Ganges

valley, relying upon charity for his livelihood and instructing the disciples who gathered about him.

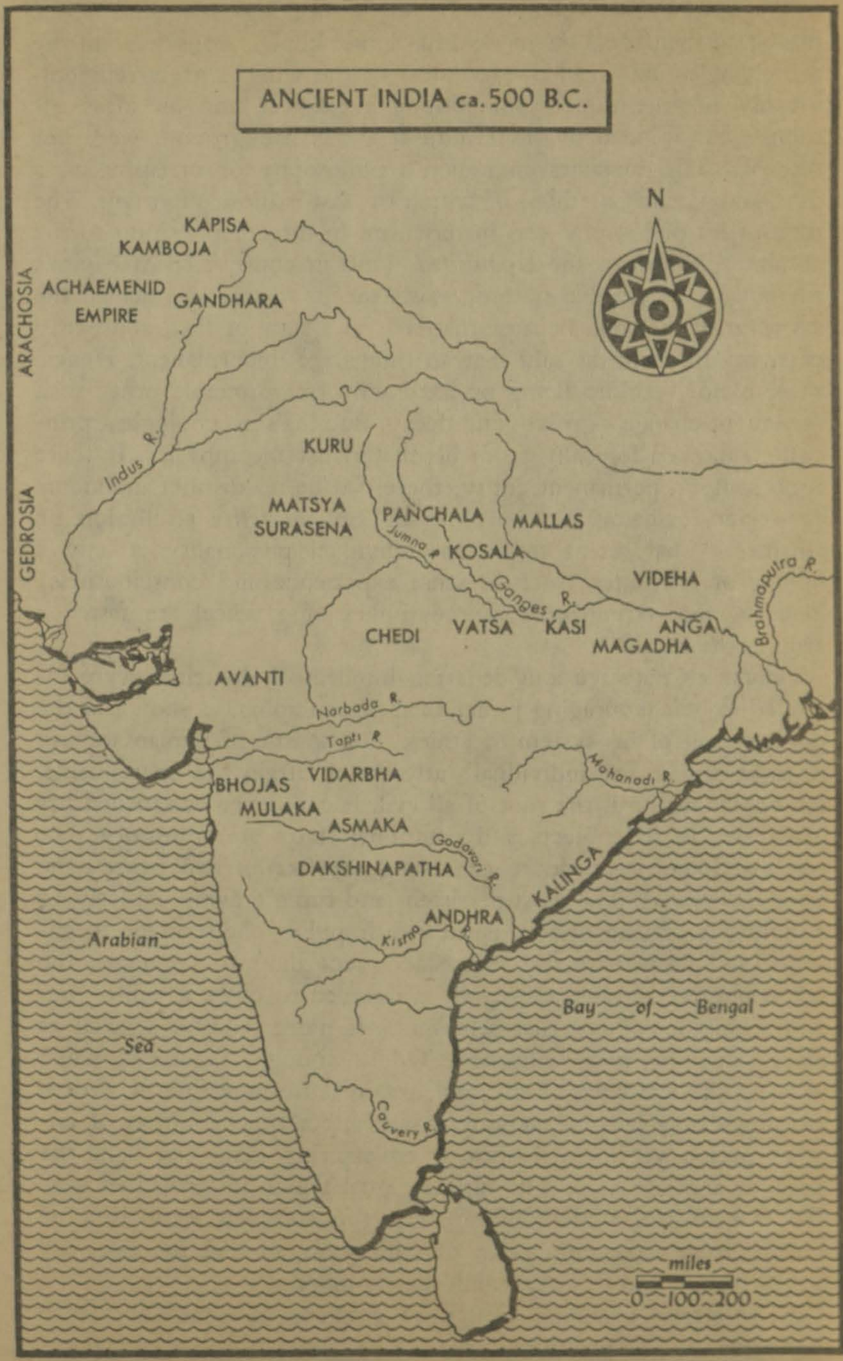
The substance of Gautama Buddha's teachings has been better preserved than the facts of his life. Some scholars consider him the most intellectual of all the founders of the world's great religions. He had no intention of establishing a religion, and his ideas, although conditioned by his Hindu religious background, were not sectarian. His doctrines embodied a philosophy or metaphysics, a psychology, and an ethics, of which the last is most important. The basis of his philosophy was materialism. In direct opposition to the absolute idealism of the *Upanishads* (and in contrast to Mahavira's teaching), he held that nothing exists except matter and denied the actuality of the soul. Because matter is in a state of flux, constantly changing its form, he said that all things are impermanent. Hence, there is no Absolute Being or fixed universal principle other than the law of change—growth and decay. Buddha's psychological principles followed logically from his materialist metaphysics. If there is no soul, no permanent entity, there can be no distinct individual personality or being. Not only the soul but the *self* is an illusion, he affirmed. What seems to be an individual personality is only a bundle of attributes (such as sense experience and consciousness) held together temporarily as the spokes of a wheel are fastened around the hub.

Gautama as a philosopher

Gautama's negative and deflating intellectual doctrines were intended to be encouraging rather than discouraging, as shown in the development of his system of ethics. The source of human anguish is, as he saw it, the individual's attempt to attain the unattainable. Desire or craving is the root of all evil. It can never be satisfied because the desired objects and emotional states are transitory; but the abandonment of desire can bring satisfaction and peace (the state of *nirvana*). The most persistent and futile craving, underlying a multitude of vain desires, is the ego impulse—the struggle to enhance and perpetuate the self. Since, according to Gautama, the self is only an illusion, the egoist is doomed to chase a will-o'-the-wisp. Thus it follows that selflessness is more realistic as well as more satisfying than selfishness. Oddly enough, Gautama, while denying the existence of the soul, retained the doctrine of *karma*, insisting that a person's actions would affect the condition of another person yet unborn—just as an expiring lamp can light the flame of another lamp. The ultimate goal which he projected was, like that of the Vedic philosophers, the complete extinction of *karma* through the cultivation of selflessness, so that the cycle of births, travail, and tragedy would be no more.

Gautama's doctrine of selflessness

In his ethical teachings Gautama's emphasis was positive rather than negative. He proclaimed the ideal of universal love, to be exemplified by service and helpfulness. Rather than a saintly hermit, he was apparently a gifted teacher, with a stock of homely illustra-



ANCIENT INDIA ca. 500 B.C.
N
KAPISA
KAMBOJA
ARACHOSIA
ACHAEMENID EMPIRE
GANDHARA
Indus R.
KURU
GEDROSIA
MATSYA
SURASENA
PANCHALA
MALLAS
Jumna R.
KOSALA
Ganges R.
VIDEHA
Brahmaputra R.
CHEDI
VATSA
KASI
ANGA
MAGADHA
AVANTI
Narbada R.
Tapti R.
Mahanadi R.
BHOJAS
VIDARBHA
MULAKA
ASMAKA
Godavari R.
DAKSHINAPATHA
KALINGA
ANDHRA
Kistna R.
Arabian
Sea
Bay of Bengal
Cauvery R.
miles
0 100 200

tions and parables. He gave sensible advice in regard to domestic and marital relations, occupations, business matters, and so on. As a rule of personal conduct he advocated "the Middle Path," by which he meant the avoidance of extremes—renouncing both indulgence and injurious asceticism, rejecting prayers and ritual and also the idea of escape into a heaven of bliss. Gautama repeatedly declared that dogmas are much less important than behavior and inner attitudes. And he was firmly opposed to forcing ideas upon anyone, believing that discussion and the power of example are the only valid means of establishing truth. Although he was an ethical rather than a social reformer and made no direct attack upon the caste system, caste distinctions were dissolved among his own group of disciples. He admonished his followers to develop their faculties to the full and to exert themselves for the benefit of others. His last words are said to have been, "Work out your emancipation with diligence."

Gautama's ethical teachings

The Buddhist movement in Gautama's lifetime had few of the characteristics of a religion. In the course of a century or two, however, it developed its own rites, mystic symbols, and other supernatural elements. The Buddhists in India gradually became an order of monks and nuns. Candidates for admission to the order were required to undergo a long period of training. After completing the training, the novitiate shaved his head, put on the yellow robes, and took the monastic vows of poverty and chastity. In contrast to Christian monks, he did not take a vow of obedience, because membership was considered a matter of free choice. The monks customarily remained in a monastery during the three months of the rainy season, which Gautama had devoted to instructing his disciples; for the rest of the year they lived as wandering mendicants, dependent upon the alms which they received in their beggars' bowls as they passed from village to village. Lay men or women who accepted the Buddhist teachings and contributed to the support of the monks were considered adherents of the faith and entitled to its benefits.

Buddhism after Gautama

Various sects of Buddhism arose as the movement spread. The two principal schools, representing a cleavage which apparently began soon after Gautama's death, are the *Hinayana* ("Lesser Vehicle") and the *Mahayana* ("Great Vehicle"). The term *Hinayana* was at first applied reproachfully, because the members of this group were bent upon their own self-perfection, claiming that it was possible for the diligent individual to attain *nirvana* in three lifetimes. The *Mahayana* school was characterized by the doctrine of the buddha-elect—a person who had won Enlightenment but chose deliberately to remain in the world of sorrow in order to work for the liberation of all mankind. In spite of its noble beginning, however, the *Mahayana* tradition became more corrupted than the *Hinayana* as time went on. The *Hinayana* school of Buddhism is represented in its purest form in Ceylon, where it was established as early as the third century B.C., and it is also the prevailing religion

Buddhist sects

of Burma and Thailand. In these countries, Gautama is still theoretically regarded as a man, but in actual practice he is worshiped as a deity, and offerings of flowers or incense are made to his image. The intellectual vigor and the moral challenge of Gautama's teachings have been greatly obscured, and elements of primitive religions have retained their hold on the people. However, the Buddha's emphasis upon kindliness, patience, and the avoidance of injury to living creatures is still prominent. *Mahayana* Buddhism was eventually developed in many different forms in Nepal, Tibet, and eastern Asia. It came to include the worship not only of Buddha but of his several supposed reincarnations, and it also transformed the concept of *nirvana* into a conventional paradise of bliss.

Intellectual achievements in ancient India

During the period so far discussed, covering more than 1000 years, the physical and external aspects of Indian civilization were still elementary. Writing was unknown until the eighth, or perhaps the seventh, century B.C., and even then it was used only for business purposes. The people lived in villages or small towns rather than cities, architecture was very simple, and political units were small. There was none of the magnificence which characterized ancient Egypt, Mesopotamia, or the extinct Indus valley civilization. To a remarkable degree the achievements of the ancient Indians were in the fields of the imagination and intellect, expressed in song and poetry, in the epics, and in philosophical and religious speculation. Their intellectual achievements included also considerable scientific progress. Medicine was highly developed as early as the Vedic age. Not only were many specific remedies listed, but dissection was practiced and delicate operations were performed. The knowledge of human anatomy was extensive, and a beginning had been made in the study of embryology. Medical science and the surgeon's vocation were held in high respect, until the caste system introduced a fear of pollution through bodily contact with unclean persons. Many fanciful elements, however, were intermingled with medical lore. An appreciable knowledge of astronomy was acquired in spite of its perversion into astrology. The suggestion that the earth revolves on its axis and that the sun only appears to rise and set was put forward in the *Vedas*, apparently without being taken very seriously. The most brilliant scientific attainments were those in mathematics. The ancient Indians were able to handle extremely large numbers in their calculations and knew how to extract square and cube roots. Besides using the decimal system they invented the all-important principle of the zero, which was eventually adopted by the rest of the world. In geometry their progress was not equal to that of the Greeks, but they surpassed the Greeks in the development of algebra.

During the Gupta Age, Indian sculpture largely emancipated itself from foreign influences and assumed characteristics peculiarly ex-

pressive of Indian ideals. The treatment of the human form was handled with a subtle delicacy, conveying a sense both of rhythmic movement and tranquility. Garments on the figures were shown as almost transparent or suggested only in faint outline so that the effect is that of nudity, although chaste rather than voluptuous. The harmonious proportions and graceful curves of the limbs were derived from a study of plant forms as well as from human anatomy. Thus Gupta art, particularly as exemplified in the statues of Buddha, was idealistic and spiritual rather than realistic.

Other qualities of Gupta sculpture

The richest creations of the Hindu artistic genius are to be found in the relief sculpture and also fresco paintings executed in the rock-cut temples upon which so much energy was expended during the period corresponding to the Classical and Medieval ages of the West. The Buddhist caves at Ajanta contain the most important surviving collection of wall paintings. After almost 2000 years they are still magnificent in both form and color though they were executed upon a none-too-durable plaster. While religious in inspiration, they are nevertheless spontaneous and unrestrained, skillfully combining the naturalism of the early Buddhist *stupa* carvings with a poetic mysticism. The paintings proclaim an unabashed delight in physical beauty and seem to suggest the conviction that the physical and spiritual aspects of experience can be brought into perfect accord, just as some of the art of the Italian Renaissance attempted to fuse the pagan ideal of joyous living with the Christian ideal of renunciation. In the Hindu temples, which increased in number from the seventh century on as Buddhism began to decline, decoration was usually in sculpture rather than painting. The relief sculptures in the Hindu cave-temples at Ellora have never been surpassed in India and rank among the supreme masterpieces of the world's art. In these carvings not only the gods but a galaxy of figures and dramatic episodes out of India's historic and legendary past seem to come alive. Many scenes are boldly realistic, but the Hindu tendency toward abstraction is also evident in the practice of depicting gods with several pairs of arms or several faces to signify their separate attributes. The themes portrayed range from voluptuous ecstasy and heroic struggle to attitudes of piety and mystic contemplation. A somewhat different effect, that of a soaring idealism, is attained in a gigantic bust of the god Shiva in an eighth-century temple at Elephanta (an island in Bombay harbor). The three faces of this statue are believed to represent the three-fold aspects of divine being—as creator, preserver, and destroyer. While the facial expressions vary appropriately, there is a captivating harmony rather than grotesque contrast among them. The whole figure evokes a feeling of masterful strength and profound serenity. The Buddhist and Hindu art of these creative centuries indicates that at least the upper and middle classes of Indian society were not yet bowed down by fatalism or by the incubus of the caste system; nor were they living in dread of a foreign conqueror.

Reliefs and frescoes

CHAPTER 9

Ancient Chinese Civilization

1. The Formative Stage

Peking man

In our study of preliterate cultures we have learned already that China was the home of one of the earliest human species, the so-called Peking man. His skeletal remains were found between 1926 and 1930 in a cave about forty miles southwest of Peking (Pei-p'ing). Anthropologists estimate that his species lived at least 500,000 years ago, and that he was probably a contemporary of Java man, the oldest known human type. Peking man's culture was, of course, extremely primitive, but there is evidence that he used crude stone tools, had a knowledge of fire, and buried his dead. Whether the members of his species were the ancestors of the historic Chinese people is a debated question. An eminent German anthropologist, Franz Weidenreich, maintains that the descent was direct. He bases his conclusion upon peculiarities in the skulls, jaws, and incisor teeth of the ancient specimens which have their counterparts among modern Mongolian peoples.

From the Lower Paleolithic to the Neolithic

Although the discovery of Peking man proves the existence of human beings with an Old Stone Age culture in China at least 500,000 years ago, there are many gaps in the record subsequent to that time. Apparently northern China was largely uninhabited by man during part of the Late or Upper Paleolithic period (as it is reckoned in Europe), probably because of the bitter climate resulting from the advance of the Arctic ice sheet. There is no doubt, however, as to human habitation of northern China during the Neolithic period, when the climate became warmer again and was perhaps less dry than at present so that conditions were favorable for agriculture. Remains have been found of two types of Neolithic culture in this region, each representing a rather late stage. One was located close to the Yellow River in what is now Honan province. On the basis of its painted pottery of excellent workmanship it has been identified as of Central Asiatic origin. It may quite possibly have been an offshoot of the Neolithic culture which flourished among the vase painters of southern Turkestan.

Late Neolithic culture in China

The other type of Late Neolithic culture had its center farther east, in the Shantung peninsula, and is distinguished by two varieties of unpainted pottery—one white in color, the other very thin and with a glossy black surface. The black-pottery culture, as it has come to be called, has no counterpart in Europe or western Asia and is believed to have originated in the Far East, possibly on some island of the Pacific. It spread westward, however, into the region

occupied by the painted-pottery folk, and tended to displace their way of life, as is indicated by changes in the technique of pottery manufacture. The most noteworthy fact concerning the black-pottery Neolithic people is that they seem to have contributed the basic pattern for Chinese society and culture, in an elementary form, of course. This would mean that the most influential Far Eastern civilization was indigenous from the outset and not an importation from some distant region where institutions and techniques had already been matured. Archaeology tends to confirm the tradition of the Chinese people that their ancestors were not immigrants from another land but had always lived on "the good earth" of the eastern river valleys.

The Bronze Age and the beginning of the Shang Dynasty

By about 1500 B.C. the east central portion of the Yellow River valley was occupied by people of Mongolian stock who had passed beyond the Neolithic into the Bronze Age, had learned how to build fortified cities, and possessed the essential attributes of civilization, including writing. The era of this Bronze Age people corresponds to the period of the Shang Dynasty in Chinese history. It was long believed by scholars that the Shang Dynasty was almost purely legendary. Excavations of the 1930's, however, have proved that it was very real and have recovered many impressive examples of its workmanship. Dates have not yet been precisely established, but the civilization was flourishing by 1400 B.C. A study of the objects which have been unearthed and especially the all-important deciphering of inscriptions have made it possible to construct a fairly complete picture of this formative period of Chinese history.

The Shang people

Racially the Shang people present no significant contrast to the earlier Neolithic inhabitants of the Yellow River valley nor to the Chinese of later times. Their culture, too, was a continuation and improvement of that of the Neolithic farming communities which had produced the black pottery. Presumably the dynasty was inaugurated by the conquest of a military chieftain, with no extensive displacement of population. The Shang kingdom occupied only a small part of China. The area under effective control may have been no more than 40,000 square miles, or about the size of the state of Ohio. The Shang people carried on trade with other communities—also agricultural but more primitive than their own—in the Yangtze valley to the south, and they had to defend themselves against barbarian and nomadic tribes from the north and west. The principal royal residence and seat of government was the city which they called by the name of Shang, situated at the northern tip of Honan province, about 80 miles north of the Yellow River (the site of modern Anyang).

Economic and social life

Agriculture was the chief source of livelihood of the Shang people, although their tools for cultivating the soil were still quite primitive. Grains were the principal crop, especially wheat and millet. Rice was also used, but this may have been imported from

the Yangtze region. It is possible that a system of irrigation had been developed. Hunting and herding contributed to the food supply. Many animals had been domesticated, including not only the dog, pig, goat, sheep, ox, horse, and chicken but also the water buffalo, monkey, and probably the elephant. Dog flesh as well as pork was a popular item of diet. But in spite of the importance of animal husbandry, Shang society was by no means nomadic; and if it had ever passed through such a stage the evidence has disappeared, even from folk traditions and literature. This is remarkable, not only because in many parts of the world a pastoral stage has preceded the agricultural, but also because the neighboring region of Central Asia has been so constantly occupied by nomadic people. Though developing in close proximity to the wandering herdsmen of Mongolia, the Chinese have always been primarily a nation of farmers.

Shang dwellings

The houses the Shang people constructed show an intelligent adaptation to the environment. The soil of northeastern China is composed largely of loess, fine particles of loam and dust borne by northwest winds from the central plateaus and deposited in the river valley and along the northeastern coast. This soil, which from its color has given rise to such geographical names as Yellow River and Yellow Sea, packs into a hard mass, solid enough to make durable walls. The Neolithic inhabitants of the region commonly lived in pits hollowed out of the loess. In Shang times rural villagers apparently also occupied pit dwellings, but the city residents built more comfortable houses above ground. For a foundation the firmly packed earth served admirably. Upon the rectangular foundation was erected a gabled-roof structure, with wooden poles holding up the central ridge of the roof and shorter posts supporting each of the two sides at the eaves. Thatching was used for the roof and packed earth for the outside walls of the house. This type of dwelling, which by coincidence is closer in design to the European style of home than to the tents of Mongolia or the mud-brick houses of Egypt and Mesopotamia, has been employed by the Chinese throughout their history.

Material culture

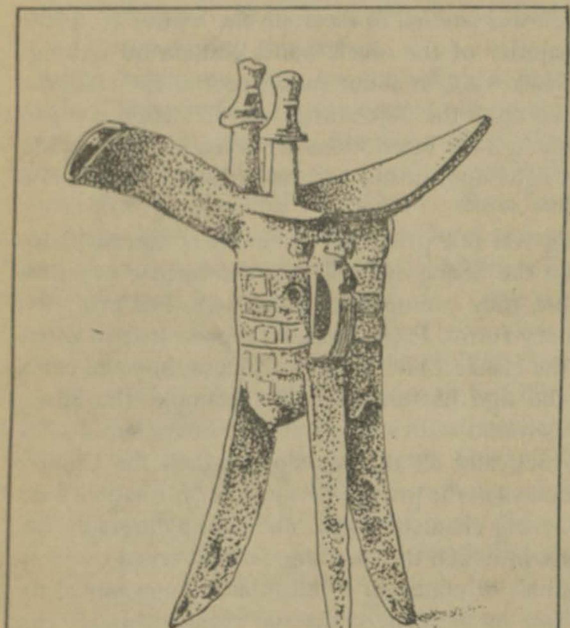
The specimens of Shang craftsmanship that archaeologists have recovered reveal a high degree of skill and versatility. In spite of familiarity with metal, Shang artisans still made many objects of stone—knives, axes, and even dishes—as well as of bone, shell, and horn. Bone implements inlaid with turquoise and exquisitely carved pieces of ivory were produced in abundance. Cowrie shells were used for jewelry and probably also served as money. Several types of pottery were manufactured. The black variety seems to have been discontinued, but a fine white pottery made of porcelain clay, chiefly for ceremonial purposes, was undoubtedly a variation of the Neolithic prototype. The bow and arrow was the most formidable weapon for the hunt or for combat. Bamboo arrows were feathered and

tipped with bronze or bone points. The bow was of the composite or reflex type, formed of two separate arcs of wood held together with horn, and said to be almost twice as powerful as the famous English long bow. Two-horse chariots, of elaborate workmanship and with spoked wheels, were probably the exclusive property of the aristocracy. Armor was made of leather, sometimes reinforced with wooden slats. Evidently the people were fond of music. For musical instruments they employed drums, stones emitting a bell-like tone when struck, and a small pipe of hollow bone with five finger-holes—more like an ocarina than a flute.

The Shang were definitely an artistic people, although not to the same degree as the Aegeans or the Greeks. The examples of sculpture thus far discovered are generally of small dimensions. A marble ox head, however, greater than life-size and fitted with a pin as if it had been fastened to a body, suggests that some large statuary was pro-

Bronze Ritual Vessel. Shang Dynasty.





Bronze Tripod Cup. Shang Dynasty (1523–1027 B.C.). Used in sacrificial ceremonies.

duced. Shang metal work was truly remarkable, especially the superb bronze castings of intricate design. Bronze articles included weapons and chariot and harness fittings, but most impressive were the objects intended for religious and ceremonial functions—tripods, libation bowls, drinking cups, and grotesquely figured masks. The

Art of the Shang people

technique employed in their making was superlative. A leading American specialist in early Chinese culture asserts that it was more flawless than the technique employed for bronze sculpture at the height of the Italian Renaissance.

Earliest system of writing in China

As has already been mentioned, this early civilization possessed a system of writing. The writing brush and an ink made of soot had been invented. Writing materials included silk cloth and wood, and it is quite possible that books were compiled with pages which were narrow strips of bamboo joined together by a thong. Fortunately, a great many specimens of writing have been preserved inscribed on pieces of animal bone, horn, and tortoise shells. Practically all these were produced by the Shang people for one purpose only, which was to obtain the counsel of deities or ancestral spirits concerning future events or a proposed course of action. They represented a process of divination by the king and priests; hence they are referred to as "oracle bones." The ancient procedure apparently was as follows. After a question had been directed to the spirits, a flat piece of split cattle bone or a tortoise shell was heated until it cracked; then the shape of the crack was studied to ascertain the answer from the spirit world. The majority of the oracle bones contain no writing; but for some unknown reason, in about 10 per cent of the cases the question was engraved upon the object after the divination rite had been performed. Although the inscriptions are brief, a careful study of them has thrown light upon many aspects of Shang society and activities.

Evolution of Shang writing

The Shang writing was not primitive but in an advanced pictographic stage. While the Shang symbols are the earliest examples found in the Far East, they presuppose a long period of evolution from more rudimentary forms. Each character represented an entire word, as it does in the classical and modern Chinese. In some cases, only the shape of the sign has changed. For example, the Shang character for *sun* was round—obviously a picture of the sun—while now it is square. Practically all the principles which the Chinese literary language employs in the process of character formation were already in use. The Shang characters were not only pictographs but sometimes ideographs, in which the meaning was conveyed by combining different symbols or concepts (the sun and moon joined together represent *bright* or *brightness;* the sun rising behind a tree stands for *east*). The phonetic principle was also applied. A character having one meaning might be used to indicate a word of different meaning but pronounced the same way, a device which seems odd only when we remember that every Chinese root character was originally a picture of some object. To avoid confusion, the phonetic symbol indicating pronunciation was combined in the same character with another symbol denoting the meaning. Not surprisingly, fewer characters were employed in Shang times than later, although it is probable that the list compiled from the oracle bones is only partial.

About 2500 characters have been distinguished in the Shang records; the written language eventually came to include more than twenty times that number.

Political and social institutions of the Shang period

Little definite information is available as to the political and social institutions of the Shang period. Governmental power was vested hereditarily in a royal family, but on the death of the king the crown passed to his younger brother in preference to the king's own sons. In addition to military activities, the king probably supervised public works and was important as the chief religious functionary. He was assisted by an educated class of priests, who served as astrologers, performed the divination rites, and supervised the calendar. Because the calendar was a lunar one, it frequently had to be adjusted to bring it into harmony with the solar year.

The family

The family was the basic social institution. The king, or a great aristocrat, might have several wives, but monogamy seems to have been the more usual practice even in the royal family, as it almost certainly was among the people generally. The position of women, at least within the upper classes, was good. Slavery existed and there were gradations in the ranks of society, but there is no evidence of a feudal system during this period.

Evolution of Shang writing

Ample testimony exists for the religious practices of the Shang people. They worshiped many natural objects and forces—the earth, rivers, the winds, even the directions (East, West, and South). To these gods they performed sacrifices, not out of doors but in temples. Burnt offerings of animal flesh were common, and a kind of wine or beer made from millet was also considered acceptable. Although the Shang were in some ways highly civilized, there is gruesome evidence that they practiced human sacrifice on a large scale. Apparently the victims were usually captives who had been taken in battle, and sometimes raiding expeditions were sent out for the express purpose of securing a batch of foreign tribesmen to be offered in sacrifice. The principal deity seems to have been a god concerned primarily with rainfall, the crops, and war. His name, Shang Ti, has persisted into later times. There is no evidence that Shang religion was essentially spiritual or ethical; it was directed toward the procuring of human prosperity, as among the Sumerians and Babylonians. The king was not a divinity like the Egyptian pharaoh, but he became an object of worship after his death, and sacrifices were performed to the departed spirits of both kings and queens. The royal tombs were sumptuous affairs. A large pit was excavated, provided with stairways, and a wooden tomb chamber was constructed at the bottom. The royal corpse was surrounded with magnificent furnishings, including figured bronzes and pottery, marble statuary, and richly adorned implements and jewels. After the funeral ceremonies the entire excavation was filled with firmly tamped earth.

It is noteworthy that the typical Chinese institution of ancestor worship was already in existence, at least in the circle of the court.

Ancestor worship

Ancestral spirits were believed to possess the power of helping or hurting their descendants, and yet they depended upon their living representatives for nourishment in the form of food offerings. It was also customary, even among people of humble circumstance, to bury valuable objects with the deceased. Divination by means of the oracle bones—the practice which bequeathed so many valuable inscriptions—was a by-product of the cult of ancestor worship and the belief in the potency of departed spirits.

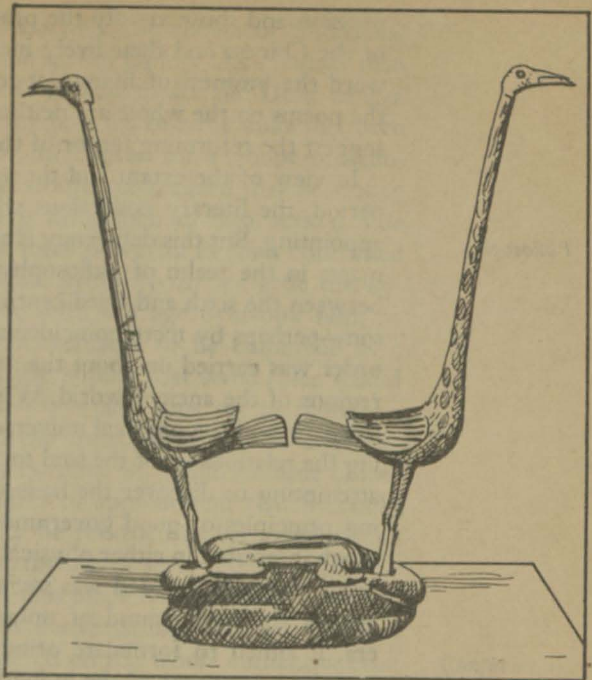
Significance of the Shang period

The Shang society represents the earliest genuine civilization of Eastern Asia for which historical records are available. In addition, it laid the foundation and provided materials for the distinctive Chinese culture pattern, as illustrated by methods of agriculture, handicrafts, artistic and architectural forms, emphasis upon the family as the basic social unit, religious concepts, and a system of writing. About 1027 B.C. the city of Shang was taken and the dynasty overthrown by semibarbarous invaders from the west. However, these barbarians assimilated, continued, and finally surpassed the culture of the Shang people whom they had conquered, and gave their own name (Chou) to the longest dynasty of China's history.

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Written records of the Chou period

By far the most significant contributions of the Chou period were in the fields of literature and philosophy. The Shang system of writing, already highly advanced, was continued with slight modifications. Evidently the Chinese now considered written records as indispensable to the conduct of both public and private affairs. They sometimes recorded important transactions in lengthy inscriptions on bronze vessels, but they more frequently wrote with the brush upon wood or cloth of silk. Books composed of thin strips of bamboo were produced in abundance. Although only a minority of the population was literate, it must have been a large minority and included the feudal nobility as well as the merchants. In contrast to the Feudal Age of Western Europe when writing was confined almost entirely to the clergy, the Chou aristocrats were versed in literature and kept full records of their properties, their dependents, and sometimes of their personal activities. Not only the king but the head of every feudal state maintained archives to preserve the luster of family traditions and to aid in settling disputes with rival princes. The Chinese, even in ancient times, were at the opposite pole from the Hindus in their attitude toward the importance of chronology and the recording of factual events (although this does not mean that Chinese documents were entirely accurate or free from fanciful elements). A young nobleman or prince, in the process of his education, was reminded by his tutors that later generations would study the annals of his administration and that he should, accordingly, choose his actions with care. Princes were regularly given instruction in history "to stimulate them to good conduct and warn them against evil"—apparently with no better results than have at-



Drum Stand of Lacquered Wood.
Late Chou Dynasty.

tended most modern efforts in this direction.

Literature of the Chou period

Of the tremendous output of Chou literature, only a few authentic portions have survived (aside from the imperishable bronze inscriptions). Some of them, however, are from a date earlier than 600 B.C. Probably the most ancient work is the *Book of Changes.* It contains a collection of hexagrams formed of straight and broken lines arranged in different combinations, with accompanying text. The figures, like the earlier Shang oracle bones, were used for divination. Thus the book was originally hardly more than a sorcerer's manual, but it came to be venerated as a work of mystic and occult wisdom. Very different is the *Document Classic* (less accurately called "*Book of History*"), which is a collection of official documents, proclamations, and speeches purporting to be from the early Chou period. The *Book of Etiquette,* dealing with ceremonial behavior, formal occasions, and preparation for adult responsibilities, was intended to assist in the education of the lesser aristocracy. Most interesting of all is the *Book of Poetry*, an anthology of about 300 poems covering a wide range of subjects and moods. Some of the poems are religious, in the nature of prayers or hymns to accompany the rites of sacrifice; others celebrate the exploits of heroes; still others are lyrical in quality, voicing the laments of a discharged official, a soldier's homesickness, delight in the beauties of nature, and the frustration or rapture of young lovers. Neither in quantity nor in profundity do these odes approach the *Vedas* of India, but they are graceful in ex-

pression and show vividly the practical down-to-earth temperament of the Chinese and their lively interest in and optimistic attitude toward the business of living—at least among the aristocracy. While the poems on the whole are neither philosophical nor spiritual, a few suggest the reforming fervor of the Hebrew prophets.

In view of the extent and the variety of writing during the Chou period, the literary collections which have survived are rather disappointing. But this deficiency is amply compensated for by achievements in the realm of philosophy, which reached a brilliant climax between the sixth and third centuries B.C. For some unexplained reason—perhaps by mere coincidence—philosophical activity of a high order was carried on about the same time in three widely separated regions of the ancient world. While the Greeks were inquiring into the nature of the physical universe and Indian thinkers were pondering the relationship of the soul to Absolute Being, Chinese sages were attempting to discover the basis of human society and the underlying principles of good government. The Chinese thinkers were not much interested in either physical science or metaphysics; the philosophy they propounded was social, political, and ethical. Developed against the background of upheaval which marked the late Chou era, it aimed to formulate principles for the stabilizing of society and the betterment of the individual. The leaders in this intellectual activity were largely from the lesser aristocracy, men of energy and ambition who could not find employment suitable to their talents and who were distressed by the turbulent state of public affairs. They were a scholarly group, fond of disputation, but also maintaining an interest in the practice of government and sometimes holding administrative posts or coaching pupils who aspired to such posts. It was a time of lively interchange of ideas, and a great variety of opinions and attitudes was put forward. Out of the ferment of theorizing and debate, four main schools of philosophic thought emerged, of which the most important were the Confucianist and the Taoist.

Philosophy

Confucius (*ca.* 551–479 B.C.), who has proved to be one of the most influential men in all history, was largely a failure from the standpoint of what he hoped to accomplish. He spent his life advocating reforms that were not adopted; yet he left an indelible stamp upon the thought and political institutions of China and other lands that came under Chinese influence. He was a native of the feudal state of Lu (in modern Shantung province) and was reputed to have been born of an aged father, a gentleman soldier named K'ung (Confucius is the Latinized form of the name K'ung Fu-tse, or "Master K'ung"). Probably his family was of the lesser aristocracy, respectable but poor. In any event, he showed a sincere interest in the common people and did not choose his disciples on the basis of birth or rank. When he was only about twenty-one he began to teach informally a group of young friends who were attracted

The life and times of Confucius

by his alert mind and by his precocious knowledge of traditional forms and usages, and his reputation spread rapidly. As a mature man in his fifties he held office for a few years under the Duke of Lu. Tradition states that he resigned the post because the duke had been turned from the path of virtue by infatuation for a troupe of dancing girls, but it is more likely that Confucius realized that he was to be given no opportunity to carry his principles into action. The duke was virtually a puppet while three powerful families controlled the state of Lu, and Confucius' office probably carried little real authority. For more than ten years, until old age overtook him, he wandered from district to district, refusing to be employed as a time-serving flatterer but continually hoping that some ruler would give him a chance to apply his ideals and thus set in motion a tide of reform that might sweep the entire country. Although revered by his small band of disciples, some of whom became officeholders, Confucius received no offer of appointment that he could accept in good conscience. Finally he returned to his native country where he died, discouraged, at the age of seventy-two.

Confucius as a teacher

Frustrated as a statesman, Confucius made his real contribution as a teacher. The memoranda of his conversations with his disciples (the *Analects*)—which are considered on the whole authentic, even though not written down in the master's lifetime—convey the impression of a lively and untrammeled mind which challenged those with whom it came in contact. Like his contemporary Gautama Buddha, and like his near-contemporary Socrates, Confucius earnestly believed that knowledge was the key to happiness and successful conduct. He also believed that almost anyone was capable of acquiring knowledge, but only through unrelenting effort. He insisted that his student-disciples should think for themselves, saying that if he had demonstrated one corner of a subject it was up to them to work out the other three corners, and constantly pricking their complacency. He recognized the difficulties in the thorough assimilation of ideas and was never satisfied with quick agreement. While no ascetic, he frowned on indulgence and urged his associates to strive continually for improvement. Though he had moments of petulance and harshness, the nobility of his character is unmistakable, and he refused to let his disappointments make him cynical. His regret, he said, was not that he was misunderstood but that he did not understand others sufficiently.

The doctrines of Confucius

The doctrines of Confucius centered upon the good life and the good community. He respected religious ceremonies as part of established custom, but he refused to speculate on religious or supernatural questions, saying, in substance: "We do not know life; how can we understand death? We do not fully understand our obligations to the living; what can we know of our obligations to the dead?" He was optimistic regarding the material world and regarding human nature, which he thought was essentially good; but he

believed that the individual's worth would not be realized unless he was properly guided in the development of his faculties. For this reason he stressed propriety and the observance of ceremonial forms —which he thought were helpful in the acquisition of self-discipline —although he was really more concerned with sincerity and intelligence than with appearances. Impressed as he was by the evils of feudal contention, Confucius advocated the restoration of central authority in the kingdom. He did not wish to abolish the feudal system altogether, but he wanted it to be in conformity with a logical distribution of power. He visualized the ideal state as a benevolent paternalism, with the ruler not only commanding but setting the example of conduct for the people to follow. He was not endorsing a totalitarian system, nor mere passivity on the part of the people. He intended the ruler to be guided in his administration by the judgment of his officials, chosen on the basis of merit from the class of scholars. The health of the entire state would depend upon the welfare of each village, and harmony would be achieved by the combined efforts of the common people from below and of the officials from above.

The political and ethical philosophy of Confucius

Confucius' teachings therefore embodied a political philosophy, which regarded the state as a natural institution but modifiable by man, and devoted to promoting the general well-being and the fullest growth of individual personalities. The state existed for man, not man for the state. On the ethical side he emphasized fellow feeling or reciprocity, the cultivation of sympathy and co-operation, which must begin in the family and then extend by degrees into the larger areas of association. He stressed the importance of the five cardinal human relationships which were already traditional among the Chinese: (1) ruler and subject, (2) father and son, (3) elder brother and younger brother, (4) husband and wife, and (5) friend and friend. These could be expanded indefinitely and were not bounded even by Chinese lines. The logic of this train of thought was summarized in the famous saying, "All men are brothers." But Confucius argued that a person must be a worthy member of his own community before he could think in terms of world citizenship. Laying no claim to originality, Confucius urged a return to an ideal order which he attributed to the ancients but which actually had never existed. Unknowingly, he was supplying guiding principles which could be utilized in the future.

Mencius and Hsun-tse

Aside from its founder, the ablest exponent of the Confucianist school was Mencius, who lived about a century later (*ca.* 373–288 B.C.). Like his master, Mencius affirmed the inherent goodness of human nature and the necessity of exemplary leadership to develop it, but he was more emphatic in insisting that the material condition of the people should be improved. He wanted the government to take the initiative in lessening inequalities and in raising the living standards of the common folk. Perhaps because political confusion

had increased since Confucius' day, he was outspoken in criticizing rulers and even justified rebellion against hopelessly corrupt governments. Mencius thus added a democratic strain to the Confucian tradition. Hsun-tse, a younger contemporary of Mencius, is usually classified as a Confucianist although he was exceptional in his gloomy view of human nature. Nevertheless, he was far from a complete pessimist and had faith in the possibility of improvement through education and proper discipline. He recommended vigorous action by the state to institute reforms and, like Mencius, favored the regulation of economic activities.

The Taoist philosophical school was in many ways the opposite of the Confucianist. Its founder was a shadowy figure of the sixth century B.C., known as Lao-tse ("Old Sage"). Little is known about the facts of his life, and some scholars doubt that he was an actual historical figure. According to tradition he served as an official at the Chou capital in charge of the archives until, becoming weary of the world, he set out for the western mountains in quest of peace and, at the request of a guard at the mountain pass, set down his words of wisdom in a little book before he disappeared. But the real authorship of the *Tao Teh Ching* (Classic of Nature and Virtue), from which the principles of Taoism are derived, is undetermined, and it may not have been written earlier than the third century B.C. The book is not only brief but enigmatical, paradoxical, and perhaps ironical. With its terse and cryptic style it seems almost like an intentional antidote to the Confucian glorification of scholarship, exhortation, and patient explanation. On the whole the Taoist book exalts nature (sometimes in the sense of impersonal cosmic force, "the Boundless" or Absolute) and deprecates human efforts. Its spirit is romantic, mystical, anti-intellectual. It not only lauds the perfection of nature but idealizes the primitive, suggesting that people would be better off without the arts of civilization, living in blissful ignorance and keeping records by means of knotted cords rather than writing. Wealth creates avarice and laws produce criminals, it asserts. It is useless to try to improve society by preachment, ritual, or elaborate regulations; the more virtue is talked about the less it is practiced. "Those who teach don't know anything; those who know don't teach." A person learns more by staying home than by traveling; the wise man sits and meditates instead of bustling about trying to reform the world.

Lao-tse and Taoism

As a political philosophy, Taoism advocates *laissez faire.* Unlike Confucius, Lao-tse believed that governmental interference was the source of iniquity and that, if people were left to follow their intuition, they would live in harmony with nature and with one another. Nevertheless, Lao-tse's ideal was not pure anarchism. Like Confucius he assumed the necessity of a wise and benevolent (although largely passive) ruler, and agreed that the only legitimate purpose of government was to promote human happiness. Perhaps his thought also

Taoist political and ethical philosophy

reflects a rural protest against both the self-important aristocracy and the artificial society of the rapidly growing towns. In Lao-tse's teachings there are strains of pacifism and the doctrine of non-retaliation for injury ("The virtuous man is for patching up; the vicious man is for fixing guilt"); of the efficacy of love in human relations ("Heaven arms with love those it would not see destroyed"); and of equalitarianism ("It is the way of Heaven to take away from those that have too much and give to those that have not enough"). The Taoist school produced several able thinkers in late Chou times and played a part in the shaping of Chinese philosophical traditions. However, in contrast to Confucianism, the Taoist doctrines were eventually transformed into a religious system, with a priesthood, temples, ritual, and emotional elements. But the Taoism which became one of the prominent religions of China had little connection with the principles expounded in the *Tao Teh Ching*.

Mo Ti

A third school of political and ethical philosophy was associated with Mo Ti (or Mo-tse), whose career is placed in the middle of the fifth century B.C. A man of decided originality, Mo Ti may have been of peasant stock; his sympathies lay with the downtrodden, and he regarded luxury and extravagance with aversion rather than envy. The distinguishing feature of his thought is that he combined the doctrine of utilitarianism—insisting that everything should be judged by its usefulness—with a sweeping idealism that drew inspiration from religious faith. He condemned elaborate ceremonies dear to Confucianists, including the traditional three-year period of mourning, on the ground that they entailed needless expense. Sports, amusements, and even music met his disapproval because they were unproductive, absorbing energies which might be employed in useful labor. The pressing need, as he saw it, was to increase the supply of food and basic commodities to improve the health, longevity, and numbers of the population; and such a program called for hard work on the part of both common people and officials. His strong denunciation of offensive warfare was also rooted in utilitarianism. War, he said, was a waste of resources and manpower, a burden even to the victor. No mere theorist, he sometimes personally intervened in disputes between states in order to avert bloodshed, and he devised defensive tactics to protect states threatened with aggression from their neighbors. Although his scale of values was practical and materialistic, Mo Ti thought that it was based upon divine sanction. He seems to have been close to belief in a personal God of righteousness, and he spoke with the intensity of a Hebrew prophet in denouncing the injustice and corruption of his day. The whole duty of man, as he saw it, was to conform to the will of Heaven.

Mo Ti's ethics were by far the boldest of any of the Chinese philosophers. In place of the Confucian system of an expanding series of loyalties beginning with the family and radiating outward, he

proclaimed the universal and impartial love of all mankind. He did not intend to abolish the family (as some Confucianists claimed he did), but he held that there can be no satisfactory community until the distinction between "self" and "other" is completely transcended. Mencius later remarked of Mo Ti, "If by grinding his whole body from the crown to the heel he could have benefited the world, he would have done it." Yet this soaring idealism was, like his other teachings, made to rest squarely on the principle of utility. Mo Ti argued that, by cultivating sympathy and mutual helpfulness with everyone, the individual was ensuring his own welfare as well as contributing to the security of others. But while his doctrine of universal and impartial affection linked altruism to self-interest, it called for a rare degree of discipline and high-mindedness, and its similarity to the ethics of Christianity has often been remarked. Mo Ti believed that the state, like other human institutions, was created by divine ordinance and that it was the duty of the ruler to carry out the will of Heaven, which he interpreted to mean improving the material condition of the people. Like the Confucianists, he demanded that the official hierarchy be chosen from the ablest men regardless of their social class, and he was willing to entrust practically unlimited power to a government thus organized. He assumed, perhaps too lightly, that a state which departed from this benevolent pattern would not long endure. Although the Mohist school, as it is called, was prominent for a while and attracted many adherents, it practically disappeared after the downfall of the Chou Dynasty—partly because of the unrelenting enmity of the Confucianists—and the teachings of the utilitarian philosopher were almost entirely forgotten until modern times. The decline of his influence is a matter of regret, because Mo Ti was undoubtedly one of the greatest idealists China ever produced.

Altruism and utilitarianism

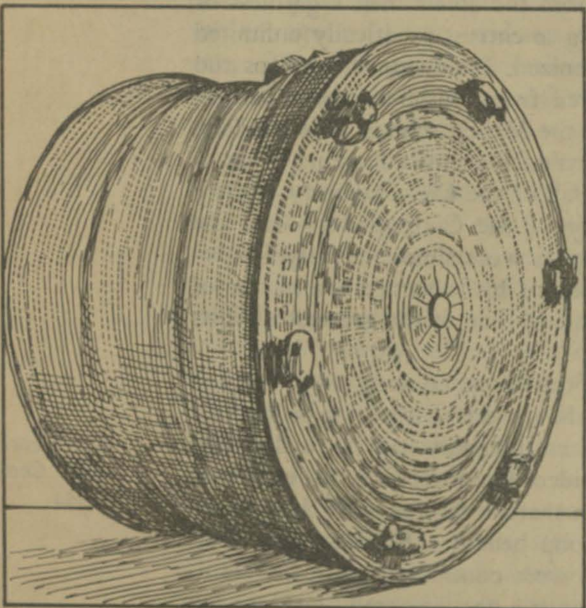
Significance of the Chou period

Although the later centuries of the Chou Dynasty were marked by strife, unrest, and suppression, the material basis for a productive society had been laid and intellectual progress had reached a high point. An abundant and many-sided literature was in existence. Philosophers had come to grips in mature fashion with fundamental problems of individual and group behavior. Scholarship was an honorable profession, and scholars were considered indispensable to the business of government. There was a growing tradition—not yet very effective—that government entailed moral responsibilities as well as privileges, that those who exercised authority did so on sufferance and only so long as they conformed to the "Decree of Heaven." Moreover, the Chinese had come to think of themselves as composing a unique society, not merely a political affiliation but the "Middle Kingdom"—the heart of civilization as contrasted with outlying "barbarian" areas. They had already mingled with and partially absorbed many non-Chinese tribes, and it is significant that the distinction between their civilization and the "barbarian" regions

was not based upon race or nationality. The attitude of superiority which they adopted sometimes made them arrogant, but it gave them a toughness in resisting the shock of invasion and other adversities.

Economic and cultural changes

Many economic and cultural changes took place during the thousand years between the Ch'in Dynasty and the end of the T'ang. Some items were borrowed from Western lands—grapes and alfalfa among the agricultural products, astrological concepts and the seven-day week from the Manicheans. The Chinese began to use coal for fuel and for smelting iron in the fourth century A.D., far in advance of Europeans. Their astrologers had observed sunspots as early as 28 B.C.; a crude seismograph was constructed in 132 A.D. The magnetic compass, apparently developed by the Taoists around 500 A.D., was used chiefly to determine favorable locations for grave sites. The properties of gunpowder had also been discovered. At this time, however, gunpowder was employed not to blow people to bits but in the manufacture of firecrackers to frighten away evil spirits. The highly important invention of paper (made of bark, hemp, and rags)



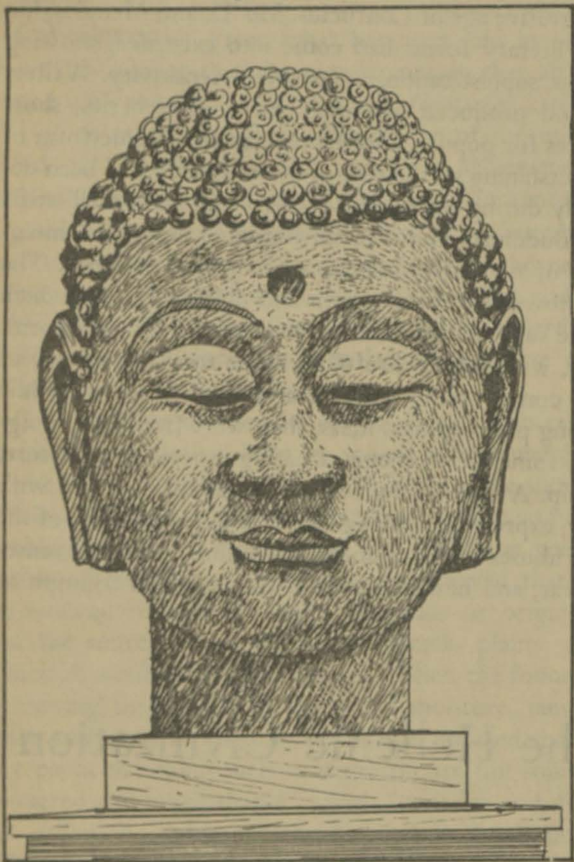
Bronze Rain Drum. Transition period. The beating of this drum was apparently believed to have some effect on causing rainfall.

was achieved by the beginning of the second century A.D., and printing from blocks was introduced about 500 years later. By the tenth century the printing of books was common not only in China but in Korea and Japan.

The arts

A great deal of the intellectual and artistic progress of this era must be credited to the Buddhists, whose contributions were not confined to religion exclusively. Buddhism enriched Chinese music by the introduction of a liturgy of vocal chants and also with several

new musical instruments, including the psaltery, guitar or mandolin and other stringed instruments, the reed organ, clarinet, and a type of flute. It was in the visual arts, however, that the impetus of Buddhism was most notable. The Buddhists of northern India, who had absorbed artistic motifs from the Greeks and Persians, spread them into Central Asia and thence into China. During the period of disunion and the early T'ang Dynasty, Chinese sculpture reached its climax, successfully blending together Indian, Iranian, and Hellenic charac-





Porcelain Ewer or Pitcher, in the Form of a Court Lady.

Stone Head of Buddha. As in all representations of the Buddha, the facial expression is intended to convey sublime repose and serenity.

teristics into a distinctive Chinese style. Superbly beautiful examples of this sculpture have survived, the best of which were produced in the late sixth and early seventh centuries. The most impressive works of architecture were Buddhist temples or sacred grottoes in northwestern China, carved out of rock caves after the Indian manner. Painting, too, reached a peak of realism and sensitivity which has rarely been surpassed. Skill in this medium was stimulated by the Chinese habit of writing with brush and ink, and pictorial figures or scenes were often combined with masterly specimens of calligraphy executed on scrolls of silk. Some paintings in fresco have been preserved from T'ang times and, like the sculpture, they show Buddhist

influence. Outstanding among the minor arts was the production of pottery figurines representing human beings and animals with grace and naturalness, used chiefly as funeral presents to the departed. The manufacture of white porcelain—the beginning of the world-famous "china" ware—apparently began in the sixth or seventh century.

Literature

As early as Chou times, the Chinese civilization was highly literary, and by the T'ang period China had probably the most abundant collection of writings of any nation in the world. Philosophical activity did not equal the creative age of Confucius, Mo Ti, and Mencius, but a great variety of literary forms had come into existence, showing maturity of thought, sophistication, and aesthetic sensitivity. Writers of the T'ang period produced histories, essays, dictionaries, short stories and romances for popular entertainers, an embryonic form of the drama, and—outshining all the rest—poetry. Poetry had been developing prolifically during the centuries of disunion and civil strife. The influence of Buddhism and Taoism imparted emotional intensity and a quality of mysticism conducive to lyrical richness. The final result was a flowering in the eighth and ninth centuries which made the T'ang the supreme age of Chinese poetry. The verse forms were usually short, with words carefully chosen to evoke beauty of tone as well as to convey pithy thought and vivid imagery. While sometimes expressing philosophical ideas, they were frequently poignant in mood and romantic in theme, treating especially of nature, love, and friendship. A few of the best examples were tinged with a deep melancholy, expressing compassion for the miserable lot of the poor, distress over abuses in government, revulsion against the senseless brutality of war, and bewilderment at the apparent triumph of evil over good.

CHAPTER 10 The Hellenic Civilization

The character of Hellenic civilization

Among all the peoples of the ancient world, the one whose culture most clearly exemplified the spirit of Western man was the Hellenic or Greek. No other of these nations had so strong a devotion to liberty or so firm a belief in the nobility of human achievement. The Greeks glorified man as the most important creature in the universe and refused to submit to the dictation of priests or despots or even to humble themselves before their gods. Their attitude was essentially secular and rationalistic; they exalted the spirit of free inquiry and made knowledge supreme over faith. It was largely for these reasons that they advanced their culture to the highest stage which the ancient world was destined to reach. But the Greeks did not begin without foundations. It is necessary to remember that the

groundwork for many of their achievements had already been laid by certain of the Oriental peoples. The rudiments of their philosophy and science had been prepared by the Egyptians. The Greek alphabet was derived from Phoenicia. And probably to a larger extent than we shall ever realize the Hellenic appreciation of beauty and freedom was a product of Aegean influence.

1. Hellenic Thought and Culture

I. PHILOSOPHY From what has been said in preceding chapters it should be clear that the popular notion that all philosophy originated with the Greeks is fallacious. Centuries earlier the Egyptians had given much thought to the nature of the universe and to the social and ethical problems of man. The achievement of the Greeks was rather the development of philosophy in a more inclusive meaning than it had ever possessed before. They attempted to find answers to every conceivable question about the nature of the universe, the problem of truth, and the meaning and purpose of life. The magnitude of their accomplishment is attested by the fact that philosophy ever since has been largely a debate over the validity of their several conclusions.

The antecedents of Greek philosophy

Greek philosophy had its origins in the sixth century B.C. in the work of the so-called Milesian school, whose members were natives of the great commercial city of Miletus on the shore of Asia Minor. Their philosophy was fundamentally scientific and materialistic. The problem which chiefly engaged their attention was to discover the nature of the physical world. They believed that all things could be reduced to some primary substance or original matter which was the source of worlds, stars, animals, plants, and men, and to which all would ultimately return. Thales, the founder of the school, perceiving that all things contained moisture, taught that the primary substance is water. Anaximander insisted that it could not be any particular thing such as water or fire but some substance "ungendered and imperishable" which "contains and directs all things." He called this substance the Infinite or the Boundless. Evidently what he had in mind was an indeterminate material mass out of which individual things are formed. The third member of the school, Anaximenes, declared that the original material of the universe is air. At first thought this appears to have been a step backward to the idea that some one of the elements is the source from which everything comes. But this is not so, for Anaximenes really chose air as the germinal substance because it made possible a quantitative interpretation of the universe. In other words, he maintained that the essential difference between things consists merely in the *amount* of the basic substance they contain. Air when rarefied becomes fire; when condensed it turns successively to wind, vapor, water, earth, and stone.

The philosophy of the Milesian school

THE WORLD IN

	Politics	Arts and Letters
	Homeric Age, 1200–800	*Vedas* in India, 1200–800
1000—	Rome founded, *ca.* 1000	
B.C.	Beginning of city-states in Greece, *ca.* 800	*Iliad* and *Odyssey*, *ca.* 800
		Upanishads, 800–600
	Feudalism in China, *ca.* 800–400	
	Age of the tyrants in Greece, 650–500	Doric architecture, 650–500
	Reforms of Solon, 594–560	
	Reforms of Cleisthenes, 508–502	Aeschylus, 525–456
500—	Overthrow of monarchy in Rome and establishment of republic, *ca.* 500	Phidias, 500?–432
B.C.		Ionic architecture, *ca.* 500–400
	Patrician-plebeian struggle in Rome, 500–287	Sophocles, 496–406
	Greco-Persian War, 493–479	Herodotus, 484–425
	Delian League, 479–404	Euripides, 480–406
	Perfection of Athenian democracy, 461–429	Thucydides, 471?–400?
		Parthenon, *ca.* 460
	Law of the Twelve Tables (Rome), *ca.* 450	Aristophanes, 448?–380?
	Peloponnesian War, 431–404	
400—	Decline of democracy in Greece, 400	Corinthian architecture, *ca.* 400–300
B.C.	Theban supremacy in Greece, 371–362	Praxiteles, 370?–310?
	Macedonian conquest of Greece, 338–337	
	Conquests of Alexander the Great, 336–323	
	Division of Alexander's empire, 323	
300—		
B.C.		
	Reign of Emperor Asoka in India, *ca.* 273–232	
	Hortensian Law (Rome), 287	
	Punic Wars, 264–146	
	Ch'in Dynasty in China, 221–207	
	Building of Great Wall in China, *ca.* 220	
200—	Han Dynasty in China, 207 B.C.–220 A.D.	
B.C.		
	Revolt of the Gracchi, 133–121	
100—	Beginning of Japanese state, *ca.* 100	Vergil, 70 B.C.–19 A.D.
B.C.	Dictatorship of Julius Caesar, 46–44	Horace, 65 B.C.–8 A.D.
	Principate of Augustus Caesar, 27 B.C.–14 A.D.	

THE CLASSICAL ERA *Dates are B.C. unless given as A.D.*

Philosophy and Science	Economics	Religion
	Rise of caste system in India, 1000–500	Development of worldly, non-ethical religion of the Greeks, 1200–800
	Economic Revolution and colonization in Greece, 750–600	
	Rise of middle class in Greece, 750–600	
Thales of Miletus, 640–546		
Pythagoras, 582?–507		
Confucius, 551?–479?		Gautama Buddha, *ca.* 563–483
Lao-tse, *ca.* 550		
	Use of iron in China, *ca.* 500	
		Orphic and Eleusinian mystery cults, 500–100
Protagoras, 481?–411		
Socrates, 469–399		
Hippocrates, 460–377?		
Democritus, 460?–362?		
Sophists, *ca.* 450–400		
Plato, 427–347		
Aristotle, 384–322	Development of coinage in China, *ca.* 400	
Mencius, 373?–288?		
Epicurus, 342–270		
Zeno (the Stoic), 336–264		
Euclid, 323?–285		
Aristarchus, 310–230	Growth of advertising and insurance, 300 B.C.–100 A.D.	
	Hellenistic world trade, 300 B.C.–100 A.D.	
	International money economy, 300 B.C.–100 A.D.	
	Growth of serfdom in Hellenistic empires, 300 B.C.–100 A.D.	
Archimedes, 287?–212	Growth of metropolitan cities, 300 B.C.–400 A.D.	
Eratosthenes, 276?–195?	Growth of slavery in Rome, 250–100	
	Rise of middle class in Rome, 250–100	Oriental mystery cults in Rome, 250–50
	Decline of small farmer in Rome, 250–100	
Herophilus, 220?–150	Depressions and unemployment in Hellenistic world, 200 B.C.–100 A.D.	
Polybius, 205?–123?	Decline of slavery in Hellenistic world, 200 B.C.–100 A.D.	Development of mysticism and otherworldliness, 200
Skeptics, 200–100		
Introduction of Stoicism into Rome, *ca.* 140		
Cicero, 106–43		
Lucretius, 98–55		
Seneca, 3 B.C.–65 A.D.	Decline of slavery in Rome, 27 B.C.–476 A.D.	Spread of Mithraism in Rome, 27 B.C.–270 A.D.

	Politics	Arts and Letters
		Tacitus, 55?–117 A.D. Colosseum, *ca.* 80 A.D.
100– A.D.	Barbarian invasions of Rome, *ca.* 100–476 A.D. Completion of Roman law by the great jurists, *ca.* 200 A.D.	
300– A.D.	Diocletian, 284–305 A.D. Constantine I, 306–337 A.D.	Classical age of Hindu culture, *ca.* 300–800 A.D.
	Theodosius I, 379–395 A.D.	Beginning of temple architecture in India, 400 A.D. Adoption of Chinese system of writing in Japan, *ca.* 405 A.D.
	Deposition of last of Roman emperors, 476 A.D.	
500– A.D.	Taika Reform Edict, creating imperial government in Japan based on Chinese model, 645 A.D.	

Significance of the teachings of the Milesian school

Although seemingly naïve in its conclusions the philosophy of the Milesian school was of real significance. It broke through the mythological beliefs of the Greeks about the origin of the world and substituted a purely rational explanation. It revived and expanded the Egyptian ideas of the eternity of the universe and the indestructibility of matter. It suggested very clearly, especially in the teachings of Anaximander, the concept of evolution in the sense of rhythmic change, of continuing creation and decay. And the conclusion would seem logical that Anaximenes' quantitative interpretation of the universe helped to prepare the way for the atomic conception of matter.

The Pythagoreans

Before the end of the sixth century Greek philosophy developed a metaphysical turn; that is, it ceased to be occupied solely with problems of the physical world and shifted its attention to abstruse questions about the nature of being, the meaning of truth, and the position of the divine in the scheme of things. First to exemplify the new tendency were the Pythagoreans, who interpreted philosophy largely in terms of religion. Little is known about them except that their leader, Pythagoras, migrated from the island of Samos to southern Italy and founded a religious community at Croton. He and his followers apparently taught that the speculative life is the highest good, but that in order to pursue it, man must purify himself from the evil desires of the flesh. They held that the essence of things is not a material substance but an abstract principle, number. Their chief significance lies in the sharp distinctions they drew between spirit and matter, harmony and discord, good and evil. Perhaps it is not

THE CLASSICAL ERA (*Continued*)

Philosophy and Science	Economics	Religion
		First persecution of Christians in Rome, *ca.* 65 A.D.
Marcus Aurelius, 121–180 A.D.	Manufacture of paper in China, *ca.* 100 A.D.	
Galen, 130–200? A.D.		
		Rapid development of Buddhism in China, 200–500 A.D.
Neo-Platonism, 250–600 A.D.		
	Growth of serfdom and extralegal feudalism in Rome, 300–500 A.D.	Beginning of toleration of Christians in Rome, 311 A.D.
		Christianity made official religion of Roman Empire, 380 A.D.
	Manufacture of glass and invention of gunpowder and magnetic compass in China, *ca.* 500 A.D.	Spread of Buddhism to Japan, *ca.* 552 A.D.

inaccurate to regard them as the real founders of dualism in Greek thought.

Renewal of the debate over the nature of the universe

A consequence of the work of the Pythagoreans was to intensify the debate over the nature of the universe. Some of their contemporaries, notably Parmenides, argued that stability or permanence is the real nature of things; change and diversity are simply illusions of the senses. Parmenides meant by this that underneath all of the surface changes which go on around us there are things which really endure. We cannot perceive them with our senses, but we can discover their existence by reason. Directly opposed to this was the position taken by Heracleitus, who argued that permanence is an illusion, that change alone is real. The universe, he maintained, is in a condition of constant flux, so that it is impossible to step twice into the same stream. Creation and destruction, life and death, are but the obverse and reverse sides of the same picture. In affirming such views Heracleitus was really contending that the things we see and hear and feel are all that there is to reality. Evolution or constant change is the law of the universe. The tree or the stone that is here today is gone tomorrow; no underlying substance exists immutable through all eternity.

Solution of the problem by the atomists

The eventual answer to the question of the nature of the universe was provided by the atomists. The founder of the atomic theory was Leucippus, but the philosopher chiefly responsible for its development was Democritus, who lived in Abdera on the Thracian coast in the second half of the fifth century. As their name implies, the atomists held that the ultimate constituents of the universe are atoms, infinite in number, indestructible, and indivisible. Although these differ in size and shape, they are exactly alike in composition. Be-



cause of the motion inherent in them, they are eternally uniting, separating, and reuniting in different arrangements. Every individual object or organism in the universe is thus the product of a fortuitous concourse of atoms. The only difference between a man and a tree is the difference in the number and arrangement of their atoms. Here was a philosophy which represented the final fruition of the materialistic tendencies of early Greek thought. Democritus denied the immortality of the soul and the existence of any spiritual world. Strange as it may appear to the minds of some people, he was a moral idealist, affirming that "Good means not merely not to do wrong, but rather not to desire to do wrong."

The intellectual revolution begun by the Sophists

About the middle of the fifth century B.C. an intellectual revolution began in Greece. The rise of the common man, the growth of individualism, and the demand for the solution of practical problems produced a reaction against the old ways of thinking. As a result philosophers abandoned the study of the physical universe and turned to consideration of subjects more intimately related to man himself. The first exponents of the new intellectual trend were the Sophists. Originally the term meant "those who are wise," but later it came to be used in the derogatory sense of men who employ specious reasoning. Since most of our knowledge of the Sophists was derived, until comparatively recently, from Plato, one of their severest critics, they were commonly considered to have been the enemies of all that was best in Hellenic culture. Modern research has exposed the fallacy of so extreme a conclusion, even though some members of the group lacked a sense of social responsibility and were

quite unscrupulous in "making the worse appear the better cause."

The greatest of the Sophists was undoubtedly Protagoras, a native of Abdera who did most of his teaching in Athens. His famous dictum, "Man is the measure of all things," comprehends the essence of the Sophist philosophy. By this he meant that goodness, truth, justice, and beauty are relative to the needs and interests of man himself. There are no absolute truths or eternal standards of right and justice. Since sense perception is the exclusive source of knowledge, there can be only particular truths valid for a given time and place. Morality likewise varies from one people to another. The Spartans encourage adultery in certain cases on the part of wives as well as husbands; the Athenians seclude their women and refuse even to allow them a normal social life. Which of these standards is right? Neither is right in any absolute sense, for there are no absolute canons of right and wrong eternally decreed in the heavens to fit all cases; yet both are right in the relative sense that the judgment of man alone determines what is good.

The doctrines of Protagoras

Some of the later Sophists went far beyond the teachings of their great master. Gorgias, for example, perverted the skepticism of Protagoras into the doctrine that the human mind can never know anything except its own subjective impressions. "Nothing exists," he declared; "if anything did exist it could not be known; if a man should chance to apprehend it, it would still be a secret; he would be unable to communicate it to his fellows." The individualism which was necessarily implicit in the teachings of Protagoras was twisted by Thrasymachus into the doctrine that all laws and customs are merely expressions of the will of the strongest and shrewdest for their own advantage, and that therefore the wise man is the "perfectly unjust man" who is above the law and concerned with the gratification of his own desires.

The extremist doctrines of the later Sophists

Yet there was much that was admirable in the teachings of all the Sophists, even of those who were the most extreme. Without exception they condemned slavery and the racial exclusiveness of the Greeks. They were champions of liberty, the rights of the common man, and the practical and progressive point of view. They perceived the folly of war and ridiculed the silly chauvinism of many of the Athenians. Perhaps their most important work was the extension of philosophy to include not only physics and metaphysics, but ethics, politics, and epistemology, or the science of knowledge, as well. As Cicero expressed it, they "brought philosophy down from heaven to the dwellings of men."

The valuable contributions of the Sophists

It was inevitable that the relativism, skepticism, and individualism of the Sophists should have aroused strenuous opposition. In the judgment of the more conservative Greeks these doctrines appeared to lead straight to atheism and anarchy. If there is no final truth, and if goodness and justice are merely relative to the whims of the individual, then neither religion, morality, the state, nor so-

The reaction against Sophism

ciety itself can long be maintained. The result of this conviction was the growth of a new philosophic movement grounded upon the theory that truth is real and that absolute standards do exist. The leaders of this movement were perhaps the three most famous individuals in the history of thought—Socrates, Plato, and Aristotle.

The career of Socrates

Socrates was born in Athens in 469 B.C. of humble parentage, his father being a sculptor, his mother a midwife. How he obtained an education no one knows, but he was certainly familiar with the teachings of earlier Greek thinkers, presumably from extensive reading. The impression that he was a mere gabbler in the market place is quite unfounded. He became a philosopher on his own account chiefly to combat the doctrines of the Sophists, and he soon gathered around him a circle of admirers, which included the two young aristocrats, Plato and Alcibiades. In 399 B.C. he was condemned to death on a charge of "corrupting the youth and introducing new gods." The real reason for the unjust sentence was the tragic outcome for Athens of the Peloponnesian War. Overwhelmed by resentment and despair, the people turned against Socrates because of his associations with aristocrats, including the traitor Alcibiades, and because of his criticism of popular beliefs.

The philosophy of Socrates

For the reason that Socrates wrote nothing himself, historians have been faced with a problem in determining the scope of his teachings. He is generally regarded as primarily a teacher of ethics with no interest in abstract philosophy or any desire to found a new school of thought. Certain admissions made by Plato, however, indicate that a large part of the famous doctrine of Ideas was really of Socratic origin. At any rate we can be reasonably sure that Socrates believed in a stable and universally valid knowledge, which man could possess if he would only pursue the right method. This method would consist in the exchange and analysis of opinions, in the setting up and testing of provisional definitions, until finally an essence of truth recognizable by all could be distilled from them. Socrates argued that in similar fashion man could discover enduring principles of right and justice independent of the selfish desires of human beings. He believed, moreover, that the discovery of such rational principles of conduct would prove an infallible guide to virtuous living, for he denied that anyone who truly knows the good can ever choose the evil.

Plato

By far the most distinguished of Socrates' pupils was Plato, who was born in Athens in 427 B.C., the son of noble parents. His real name was Aristocles, "Plato" being a nickname supposedly given to him by one of his teachers because of his broad frame. When he was twenty years old he joined the Socratic circle, remaining a member until the tragic death of his teacher. He seems to have drawn inspiration from other sources also, notably from the teachings of Parmenides and the Pythagoreans. Unlike his great master he was a prolific writer, though some of the works attributed to him are

of doubtful authorship. The most noted of his writings are such dialogues as the *Apology*, the *Protagoras*, the *Phaedrus*, the *Timaeus*, and the *Republic*. He was engaged in the completion of another great work, the *Laws*, when death overtook him in his eighty-first year.

Plato's philosophy of Ideas

Plato's objectives in developing his philosophy were similar to those of Socrates although somewhat broader: (1) to combat the theory of reality as a disordered flux and to substitute an interpretation of the universe as essentially spiritual and purposeful; (2) to refute the Sophist doctrines of relativism and skepticism; and (3) to provide a secure foundation for ethics. In order to realize these objectives he developed his celebrated doctrine of Ideas. He admitted that relativity and constant change are characteristics of the world of physical things, of the world we perceive with our senses. But he denied that this world is the complete universe. There is a higher, spiritual realm composed of eternal forms or Ideas which only the mind can conceive. These are not, however, mere abstractions invented by the mind of man, but spiritual things. Each is the archetype or pattern of some particular class of objects or relation between objects on earth. Thus there are Ideas of man, tree, shape, size, color, proportion, beauty, and justice. Highest of them all is the Idea of the Good, which is the active cause and guiding purpose of the whole universe. The things we perceive with our senses are merely imperfect copies of the supreme realities, Ideas.

Plato's ethical and religious philosophy

Plato's ethical and religious philosophy was closely related to his doctrine of Ideas. Like Socrates he believed that true virtue has its basis in knowledge. But the knowledge derived from the senses is limited and variable; hence true virtue must consist in rational apprehension of the eternal Ideas of goodness and justice. By relegating the physical to an inferior place, he gave to his ethics a mildly ascetic tinge. He regarded the body as a hindrance to the mind and taught that only the rational part of man's nature is noble and good. In contrast with some of his later followers, he did not demand that appetites and emotions should be denied altogether, but urged that they should be strictly subordinated to the reason. Plato never made his conception of God entirely clear. Sometimes he referred to the Idea of the Good as if it were a divine power of subordinate rank; at other times as if it were the supreme creator and ruler of the universe. Probably the latter is what he really meant. At any rate it is certain that he conceived of the universe as spiritual in nature and governed by intelligent purpose. He rejected both materialism and mechanism. As for the soul, he regarded it not only as immortal but as pre-existing from all eternity.

Plato as a political philosopher

As a political philosopher Plato was motivated by the ideal of constructing a state which would be free from turbulence and self-seeking on the part of individuals and classes. Neither democracy nor liberty but harmony and efficiency were the ends he desired to achieve. Accordingly, he proposed in his *Republic* a famous plan

for society which would have divided the population into three principal classes corresponding to the functions of the soul. The lowest class, representing the appetitive function, would include the farmers, artisans, and merchants. The second class, representing the spirited element or will, would consist of the soldiers; while the highest class, representing the reason, would include the intellectual aristocracy. Each of these classes would be supposed to perform those tasks for which it was best fitted. The function of the lowest class would be the production and distribution of goods for the benefit of the whole community; that of the soldiers, defense; while the aristocracy by reason of special aptitude for philosophy would enjoy a monopoly of political power. The division of the people into these several ranks would not be made on the basis of birth or wealth, but through a sifting process which would take into account the ability of each individual to profit from education. Thus the farmers, artisans, and merchants would be those who had shown the least intellectual capacity, whereas the philosopher-kings would be those who had shown the greatest.

Aristotle

The last of the great champions of the Socratic tradition was Aristotle, a native of Stagira, born in 384 B.C. At the age of seventeen he entered Plato's Academy,[1] continuing as student and teacher there for twenty years. In 343 he was invited by King Philip of Macedon to serve as tutor to the young Alexander. Perhaps history affords few more conspicuous examples of wasted talent. Seven years later he returned to Athens, where he conducted a school of his own, known as the Lyceum, until his death in 322 B.C. Aristotle wrote even more voluminously than Plato and on a greater variety of subjects. His principal works include treatises on logic, metaphysics, rhetoric, ethics, natural sciences, and politics. A considerable number of the writings credited to him have never been found.

Aristotle compared with Plato and Socrates

Though Aristotle was as much interested as Plato and Socrates in absolute knowledge and eternal standards, his philosophy differed from theirs in several outstanding respects. To begin with, he had a higher regard for the concrete and the practical. In contrast with Plato, the aesthete, and Socrates, who declared he could learn nothing from trees and stones, Aristotle was a scientist with a compelling interest in biology, medicine, and astronomy. Moreover, he was less inclined than his predecessors to a spiritual outlook. And lastly, he did not share their strong aristocratic sympathies.

Aristotle's conception of the universe

Aristotle agreed with Plato that universals, Ideas (or forms as he called them), are real, and that knowledge derived from the senses is limited and inaccurate. But he refused to go along with his master in ascribing an independent existence to universals and in reducing material things to pale reflections of their spiritual patterns. On the contrary, he asserted that form and matter are of equal importance;

[1] So called from the grove of Academus, where Plato and his disciples met to discuss philosophic problems.

both are eternal, and neither can exist inseparable from the other. It is the union of the two which gives to the universe its essential character. Forms are the causes of all things; they are the purposive forces which shape the world of matter into the infinitely varied objects and organisms around us. All evolution, both cosmic and organic, results from the interaction of form and matter upon each other. Thus the presence of the form *man* in the human embryo molds and directs the development of the latter until it ultimately evolves as a human being. While the mechanical motion of the matter itself plays some part in the process also, the determining factor is the purposive action of the form. Aristotle's philosophy may therefore be regarded as a halfway house between the spiritualism and transcendentalism of Plato, on the one hand, and the mechanistic materialism of the atomists on the other. His conception of the universe was *teleological*—that is, governed by purpose; but he refused to regard the spiritual as completely overshadowing its material embodiment.

Aristotle's religious doctrines

That Aristotle should have conceived of God primarily as a First Cause is no more than we should expect from the dominance of the scientific attitude in his philosophy. Unlike Plato's Idea of the Good, Aristotle's God did not fulfill an ethical purpose. His character was that of a Prime Mover, the original source of the purposive motion contained in the forms. In no sense was he a personal God, for his nature was pure intelligence, devoid of all feelings, will, or desire. Aristotle seems to have left no place in his religious scheme for individual immortality: all the functions of the soul, except the creative reason which is not individual at all, are dependent upon the body and perish with it.

Aristotle's ethical philosophy of the golden mean

Aristotle's ethical philosophy was less ascetic than Plato's. He did not regard the body as the prison of the soul, nor did he believe that physical appetites are necessarily evil in themselves. He taught that the highest good for man consists in self-realization, that is, in the exercise of that part of man's nature which most truly distinguishes him as a human being. Self-realization would therefore be identical with the life of reason. But the life of reason is dependent upon the proper combination of physical and mental conditions. The body must be kept in good health and the emotions under adequate control. The solution is to be found in the *golden mean*, in preserving a balance between excessive indulgence on the one hand and ascetic denial on the other. This was simply a reaffirmation of the characteristic Hellenic ideal of *sophrosyne* ("nothing too much").

The golden mean applied to politics

Although Aristotle included in his *Politics* much descriptive and analytical material on the structure and functions of government, he dealt primarily with the broader aspects of political theory. He considered the state as the supreme institution for the promotion of the good life among men, and he was therefore vitally interested in its origin and development and in the best forms it could be made to

assume. Declaring that man is by nature a political animal, he denied that the state is an artificial product of the ambitions of the few or of the desires of the many. On the contrary, he asserted that it is rooted in the instincts of man himself, and that civilized life outside of its limits is impossible. He considered the best state to be neither a monarchy, an aristocracy, nor a democracy, but a *polity*—which he defined as a commonwealth intermediate between oligarchy and democracy. Essentially it would be a state under the control of the middle class, but Aristotle intended to make sure that the members of that class would be fairly numerous, for he advocated measures to prevent the concentration of wealth. He defended the institution of private property, but he opposed the heaping up of riches beyond what is necessary for intelligent living. He recommended that the government should provide the poor with money to buy small farms or to "make a beginning in trade and husbandry" and thus promote their prosperity and self-respect.

Hellenic science

II. SCIENCE Contrary to a popular belief, the period of Hellenic civilization, strictly speaking, was not a great age of science. The vast majority of the scientific achievements commonly thought of as Greek were made during the Hellenistic period, when the culture was no longer predominantly Hellenic but a mixture of Hellenic and Oriental. The interests of the Greeks in the Periclean age and in the century that followed were chiefly speculative and artistic; they were not deeply concerned with material comforts or with mastery of the physical universe. Consequently, with the exception of some important developments in mathematics, biology, and medicine, scientific progress was relatively slight.

Mathematics

The founder of Greek mathematics was apparently Thales of Miletus, who is supposed to have originated several theorems which were later included in the geometry of Euclid. Among them were the following: (1) a circle is bisected by any diameter; (2) the angles at the base of an isosceles triangle are equal; (3) if two straight lines cut one another, the vertically opposite angles are equal. Perhaps more significant was the work of the Pythagoreans, who developed an elaborate theory of numbers, classifying them into various categories, such as odd, even, prime, composite, even-times-even, perfect, and so forth. They are also supposed to have discovered the theory of proportion and to have proved for the first time that the sum of the three angles of any triangle is equal to two right angles. But the most famous of their achievements was the discovery of the theorem attributed to Pythagoras himself: the square of the hypotenuse of any right-angled triangle is equal to the sum of the squares on the other two sides. The Greek who first developed geometry as a science is now considered to have been Hippocrates of Chios, not to be confused with the physician, Hippocrates of Cos.

The first of the Greeks to manifest an interest in biology was the philosopher Anaximander, who developed a crude theory of organic

evolution based upon the principle of survival through progressive adaptations to the environment. The earliest ancestral animals, he asserted, lived in the sea, which originally covered the whole face of the earth. As the waters receded, some organisms were able to adjust themselves to their new environment and became land animals. The final product of this evolutionary process was man himself. The real founder of the science of biology, however, was Aristotle. Devoting many years of his life to painstaking study of the structure, habits, and growth of animals, he revealed many facts which were not destined to be discovered anew until the seventeenth century or later. The metamorphoses of various insects, the reproductive habits of the eel, the embryological development of the dog-fish (how the embryo is nourished in the womb by means of a placenta after the fashion of unborn mammals)—these are only samples of the amazing extent of his knowledge. Unfortunately he committed some errors. He denied the sexuality of plants, and he accepted uncritically some ancient myths about goats breathing through their ears and vultures being impregnated by the wind. Although he subscribed to the general theory of evolution, he believed in the spontaneous generation of certain species of worms and insects.

Biology

Greek medicine also had its origin with the philosophers. The pioneers were Empedocles, exponent of the theory of the four elements (earth, air, fire, and water), and Alcmeon, a member of the Pythagorean school. The former discovered that blood flows to and from the heart, and that the pores of the skin supplement the work of the respiratory passages in breathing. Alcmeon originated the practice of dissecting animal bodies, discovered the optic nerve and the Eustachian tubes, and learned that the brain is the center of the nervous system. More important still was the work of Hippocrates of Cos in the fifth and fourth centuries. If this great physician had made no other contribution than his overthrow of the supernatural explanation of disease, he would still deserve to be called the father of medicine. He dinned into the ears of his pupils the doctrine that "Every disease has a natural cause, and without natural causes, nothing ever happens." In addition, by his methods of careful study and comparison of symptoms he laid the foundations for clinical medicine. He discovered the phenomenon of crisis in disease and improved the practice of surgery. Though he had a wide knowledge of drugs, his chief reliances in treatment were diet and rest. The main fact to his discredit was his development of the theory of the four humors—the notion that illness is due to excesssive amounts of yellow bile, black bile, blood, and phlegm in the system. The practice of bleeding the patient was the regrettable outgrowth of this theory.

Medicine

III. LITERATURE Generally the most common medium of literary expression in the formative age of a people is the epic of heroic deeds. It is a form well adapted to the pioneering days of battle and lusty adventure when men have not yet had time to be awed by the mys-

The epic of heroic deeds

tery of things. The most famous of the Greek epics, the *Iliad* and the *Odyssey*, were put into written form just at the end of the Homeric Age. The first has its theme in the love and wrath of Achilles; the second describes the wanderings and return of Odysseus. Both have supreme literary merit in their carefully woven plots, in the music of their poetry, in the sensuous appeal of their imagery, in the realism of their character portrayals, and in their mastery of the full range of emotional intensity. They exerted an almost incalculable influence upon later writers. Their style and language inspired the fervid emotional poetry of the sixth century, and they were an unfailing source of plots and themes for the great tragedians of the Golden Age.

Development of the elegy

The three centuries which followed the Homeric Age were distinguished, as we have already seen, by tremendous social changes. The rural pattern of life gave way to an urban society of steadily increasing complexity. The founding of colonies and the growth of commerce provided new interests and new habits of living. Individuals hitherto submerged rose to a consciousness of their power and importance. It was inevitable that these changes should be reflected in new forms of literature, especially of a more personal type. The first to be developed was the elegy, which was probably intended to be declaimed rather than sung to the accompaniment of music. Elegies varied in theme from individual reactions toward love to the idealism of patriots and reformers. Generally, however, they were devoted to melancholy reflection on the disillusionments of life or to bitter lament over loss of prestige. Outstanding among the authors of elegiac verse were Solon the legislator, Mimnermus, and Theognis.

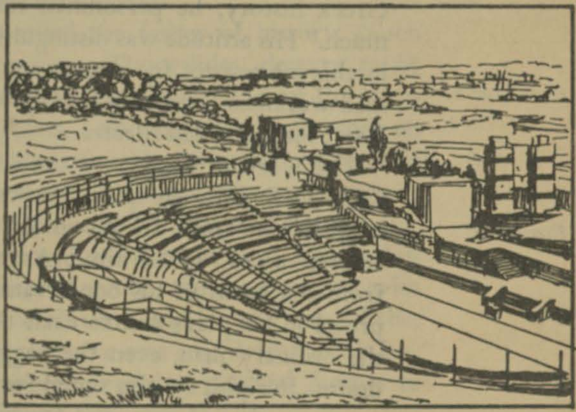
Lyric poetry

In the sixth century and the early part of the fifth, the elegy was gradually displaced by the lyric, which derives its name from the fact that it was sung to the music of the lyre. The new type of poetry was particularly well adapted to the expression of passionate feelings, the violent loves and hates engendered by the strife of classes. It was employed for other purposes also. Both Alcaeus and Sappho used it to describe the poignant beauty of love, the delicate grace of spring, and the starlit splendor of a summer night. Meanwhile other poets developed the choral lyric, intended to express the feelings of the community rather than the sentiments of any one individual. Greatest of all the writers of this group was Pindar of Thebes, who wrote during the first half of the fifth century. The lyrics of Pindar took the form of odes celebrating the victories of athletes and the glories of Hellenic civilization. They are significant also for their religious and moral conceptions. Pindar had accepted the idea that Zeus is a god of righteousness, and that he will punish the wicked with the "direst doom" and reward the good with a life "that knows no tears."

The supreme literary achievement of the Greeks was the tragic drama. Like so many of their other great works, it had its roots in

religion. At the festivals dedicated to the worship of Dionysus, the god of spring and of wine, a chorus of men dressed as satyrs or goat-men sang and danced around an altar, enacting the various parts of a dithyramb or choral lyric which related the story of the god's career. In time a leader came to be separated from the chorus to recite the main parts of the story. The true drama was born about the beginning of the fifth century when Aeschylus introduced a second "actor" and relegated the chorus to the background. The name "tragedy" which came to be applied to this drama was probably derived from the Greek word *tragos* meaning "goat."

The origins of tragic drama



Greek Theater in Syracuse on the Island of Sicily. Syracuse was one of the largest and most prosperous of Greek colonial cities. The construction, to take advantage of the slope of the hill, and the arrangement of the stage are of particular interest in this picture. Greek dramas were invariably presented in the open air.

Greek tragedy stands out in marked contrast to the tragedies of Shakespeare or Eugene O'Neill. There was, first of all, little action presented on the stage; the main business of the actors was to recite the incidents of a plot which was already familiar to the audience, for the story was drawn from popular legends. Secondly, Greek tragedy devoted little attention to the study of complicated individual personality. There was no unfoldment of personal character as shaped by the vicissitudes of a long career. Those involved in the plot were scarcely individuals at all, but types. On the stage they wore masks to disguise any characteristics which might serve to distinguish them too sharply from the rest of humanity. In addition, Greek tragedies differed from the modern variety in having as their theme the conflict between man and the universe, not the clash of individual personalities, or the conflict of man with himself. The tragic fate which befell the main characters in these plays was external to man himself. It was brought on by the fact that someone had committed a crime against society, thereby offending the moral scheme of the universe. Punishment must follow in order to balance the scale of justice. Finally, the purpose of Greek tragedies was not merely to depict suffering and to interpret human actions, but to portray "the ideal conduct of the ideal Hellene in a painful situation," and to purify the emotions of the audience by representing the triumph of justice.

Greek tragedy compared with modern tragedy

As already indicated, the founder of Greek tragedy was Aeschylus (525–456 B.C.). Though he is supposed to have written about eighty plays, only seven have survived in complete form, among them *The Persians, Seven against Thebes, Prometheus Bound*, and a trilogy known as *Oresteia*. Guilt and punishment is the recurrent theme of nearly all of them. The second of the dramatists, Sophocles (496–406), is often considered to have been the greatest. His style was more polished and his philosophy more profound than that of his predecessor. He was the author of over a hundred plays, eighteen of which won first or second prize. More than any other writer in Greek history, he personified the Hellenic ideal of "nothing too much." His attitude was distinguished by love of harmony and peace, intelligent respect for democracy, and profound sympathy for human weakness. The most famous of his plays now extant are *Oedipus Rex, Antigone*, and *Electra*.

Aeschylus and Sophocles

The work of the last of the tragedians, Euripides (480–406), reflects a far different spirit. He was a skeptic, an individualist, a humanist, who took delight in ridiculing the ancient myths and the "sacred cows" of his time. An embittered pessimist who suffered from the barbs of his conservative critics, he loved to humble the proud in his plays and to exalt the lowly. He was the first to give the ordinary man, even the beggar and the peasant, a place in the drama. Euripides is also noted for his sympathy for the slave, for his condemnation of war, and for his protests against the exclusion of women from social and intellectual life. Because of his humanism, his tendency to portray men as they actually were (or even a little worse), and his introduction of the love *motif* into drama, he is often considered a modernist. It must be remembered, however, that in other respects his plays were perfectly consistent with the Hellenic model. They did not exhibit violent action, the evolution of individual character, or the conflict of egos to any more notable extent than did the works of Sophocles or Aeschylus. Among the best-known tragedies of Euripides are *Alcestis, Medea*, and *The Trojan Women*.

Euripides

Hellenic comedy was definitely inferior to tragedy. In common with tragedy it appears to have grown out of the Dionysiac festivals, but it did not attain full development until late in the fifth century B.C. Its only outstanding representative was Aristophanes (448?–380?), a somewhat coarse and belligerent aristocrat who lived in Athens. Most of his plays were written to satirize the political and intellectual ideals of the radical democracy of his time. In *The Knights* he pilloried the incompetent and greedy politicians for their reckless adventures in imperialism. In *The Frogs* he lampooned Euripides for the innovations the latter had made in the drama. *The Clouds* he reserved for ridicule of the Sophists, ignorantly or maliciously classifying Socrates as one of them. While he was undoubtedly a clever poet with a mastery of subtle humor and imaginative skill, his

Hellenic comedy

ideas were founded largely upon prejudice.

No account of Greek literature would be complete without some mention of the two great historians of the Golden Age. Herodotus, the "father of history" (484–425), was a native of Halicarnassus in Asia Minor. He traveled extensively through the Persian empire, Egypt, Greece, and Italy, collecting a multitude of interesting data about various peoples. His famous account of the great war between the Greeks and the Persians included so much background that the work seems almost a history of the world. He regarded that war as an epic struggle between East and West, with Zeus giving victory to the Greeks against a mighty host of barbarians.

The Greek historians: Herodotus

If Herodotus deserves to be called the father of history, much more does his younger contemporary, Thucydides, deserve to be considered the founder of scientific history. Influenced by the skepticism and practicality of the Sophists, Thucydides chose to work on the basis of carefully sifted evidence, rejecting opinions, legends, and hearsay. The subject of his *History* was the war between Sparta and Athens, which he described scientifically and dispassionately, emphasizing the complexity of causes which led to the fateful clash. His aim was to present an accurate record which could be studied with profit by statesmen and generals of all time, and it must be said that he was in full measure successful. If there was any defect in his historical method, it consisted in overemphasizing political factors to the neglect of the social and economic.

Thucydides



Reconstruction of the Interior of the Parthenon. The statue was a resplendent gold and ivory figure of Athena, protecting goddess of the city state. Like most of the rest of Parthenon sculpture, it was the work of Phidias.

2. *The Meaning of Greek Art*

Probably art even more than literature reflected the true character of Hellenic civilization. The Greek was essentially a materialist who conceived his world in physical terms. Plato and the followers of the



The Parthenon. The largest and most famous of Athenian temples, the Parthenon is considered the classic example of Doric architecture. Its columns were made more graceful by tapering them in a slight curve toward the top. Its friezes and pediments were decorated with lifelike sculptures of prancing horses, fighting giants, and benign and confident deities.

The importance of Greek art

mystic religions were, of course, exceptions, but very few other Greeks had much interest in a universe of spiritual realities. It would be natural therefore to find that the material emblems of architecture and sculpture should exemplify best the ideals which the Greek held before him.

The ideals embodied in Greek art

What did Greek art express? Above all, it symbolized humanism—the glorification of man as the most important creature in the universe. Though much of the sculpture depicted gods, this did not detract in the slightest from its humanistic quality. The Greek deities existed for the benefit of man, so that in glorifying them he glorified himself. Certainly there was nothing mystical or otherworldly in the religious aspects of Greek art. Both architecture and sculpture embodied the ideals of balance, harmony, order, and moderation. Anarchy and excess were abhorrent to the mind of the Greek, but so was absolute repression. Consequently, his art exhibited qualities of simplicity and dignified restraint—free from decorative extravagance, on the one hand, and from restrictive conventions on the other. Moreover, Greek art was an expression of the national life. Its purpose was not merely aesthetic but political: to symbolize the pride of the people in their city and to enhance their consciousness of unity. The Parthenon at Athens, for example, was the temple of Athena, the protecting goddess who presided over the corporate life of the state. In providing her with a beautiful shrine which she might frequently visit, the Athenians were giving evidence of their love for their city and their hope for its continuing welfare.

Greek art compared with that of later peoples

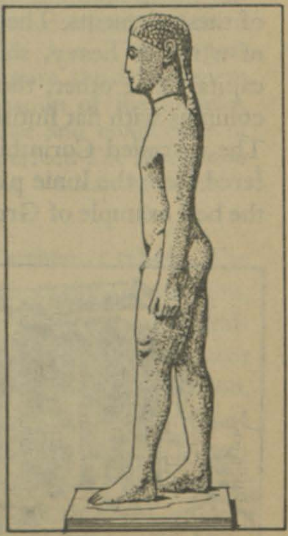
The art of the Hellenes differed from that of nearly every people since their time in an interesting variety of ways. Like most of the tragedies of Aeschylus and Sophocles, it was universal. It included few portraits of personalities either in sculpture or in painting.[1] The human beings depicted were generally types, not individuals. Again, Greek art differed from that of most later peoples in its ethical purpose. It was not art for the sake of mere decoration or for the expression of the artist's individual philosophy, but it was a medium for the ennoblement of man. This does not mean that it was didactic

[1] Most of the portraits in sculpture commonly considered Greek really belong to the Hellenistic Age, although a few were produced at the end of the fourth century B.C.

in the sense that its merit was determined by the moral lesson it taught; but rather that it was supposed to exemplify qualities of living essentially artistic in themselves. The Athenian, at least, drew no sharp distinction between the ethical and aesthetic spheres; the beautiful and the good were really identical. True morality therefore consisted in rational living, in the avoidance of grossness, disgusting excesses, and other forms of conduct aesthetically offensive. Finally, Greek art may be contrasted with most later forms in the fact that it was not "naturalistic." Although the utmost attention was given to the depiction of beautiful bodies, this had nothing to do with fidelity to nature. The Greek was not interested in interpreting nature for its own sake, but in expressing *human* ideals.

Periods in the evolution of Greek art

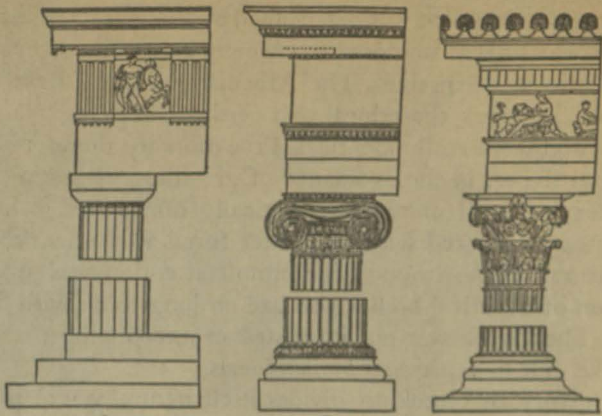
The history of Greek art divides itself naturally into three great periods. The first, which can be called the archaic period, covered the seventh and sixth centuries. During the greater part of this age sculpture was dominated by Egyptian influence, as can be seen in the *frontality and rigidity of the statues*, with their square shoulders and one foot slightly advanced. Toward the end, however, these conventions were thrown aside. The chief architectural styles also had their origin in this period, and several crude temples were built. The second period, which occupied the fifth century, witnessed the full perfection of both architecture and sculpture. The art of this time was completely idealistic. During the fourth century, which was the



Marble Statue of the Apollo Type. Probably end of Seventh Century B.C. At this time Greek sculpture was still under Egyptian influence, as can be seen in the headdress, the imperturbable face, and the arms and feet of this statue.

last period of Hellenic art, architecture declined and sculpture assumed new characteristics. It came to reflect more clearly the reactions of the individual artist, to incorporate traces of realism, and to lose some of its quality as an expression of civic pride.

For all its artistic excellence, Greek temple architecture was one of



Details of the Three Famous Orders of Greek Architecture. A, Doric; B, Ionic; C, Corinthian.

Architecture

the simplest of structural forms. Its essential elements were really only five in number: (1) the cella or nucleus of the building, which was a rectangular chamber to house the statue of the god; (2) the columns, which formed the porch and surrounded the cella; (3) the entablature or lintel, which rested upon the columns and supported the roof; (4) the gabled roof itself; and (5) the pediment or triangular section under the gable of the roof. Two different architectural styles were developed, representing modifications of certain of these elements. The more popular was the Doric, which made use of a rather heavy, sharply fluted column surmounted by a plain capital. The other, the Ionic, had more slender and more graceful columns with flat flutings, a triple base, and a scroll or volute capital. The so-called Corinthian style, which was chiefly Hellenistic, differed from the Ionic primarily in being more ornate. The Parthenon, the best example of Greek architecture, was essentially a Doric build-



Temple of Athena Nike. This temple, in Athens, is one of the most graceful specimens of the Ionic style. Planned by Pericles in 450 B.C., it was probably not completed until nearly the end of the Fifth Century.

ing, but it reflected some of the grace and subtlety of Ionic influence.

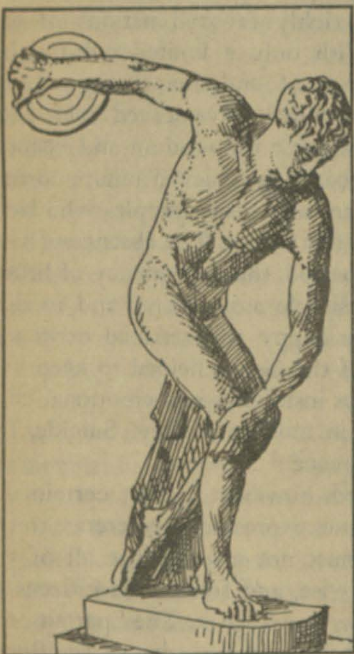
According to the prevailing opinion among critics, Greek sculpture attained its acme of development in the work of Phidias (500?–432?).

Sculpture

His masterpieces were the statue of Athena in the Parthenon and the statue of Zeus in the Temple of Olympian Zeus. In addition, he

Hermes with the Infant Dionysus, by Praxiteles, Fourth Century B.C. The god Hermes is represented as a slender, graceful youth, reflecting the humanism of Greek religion. The countenance suggests an attitude of repose and philosophic contentment. Original in the Olympia Museum, Greece.





The *Discobolus*, or Discus Thrower, of Myron. This statue reflects the glorification of the human body characteristic of Athens in the Golden Age. The proportions of the figure, the development and co-ordination of the muscles, and the repose and confidence of the face are perfect. *The Discobolus* is now in the Vatican Museum.

designed and supervised the execution of the Parthenon reliefs. The main qualities of his work are grandeur of conception, patriotism, proportion, dignity, and restraint. Nearly all of his figures are idealized representations of deities and mythological creatures in human form. The second most important fifth-century sculptor was Myron, famous for his statue of the discus thrower and for his glorification of other athletic types. The names of three great sculptors in the fourth century have come down to us. The most gifted of them was Praxiteles, renowned for his portrayal of humanized deities with slender, graceful bodies and countenances of philosophic repose. The best known of his works is the statue of Hermes with the infant Dionysus. His older contemporary, Scopas, gained distinction as an emotional sculptor. One of his most successful creations was the statue of a religious ecstatic, a worshiper of Dionysus, in a condition of mystic

frenzy. At the end of the century Lysippus introduced even stronger qualities of realism and individualism into sculpture. He was the first great master of the realistic portrait as a study of personal character.

3. *The Greek Achievement and Its Significance for Us*

The magnitude of the Greek achievement

No careful historian would deny that the achievement of the Greeks was one of the most remarkable in the history of the world. With no great expanse of fertile soil or abundance of mineral resources, they succeeded in developing a higher and more varied civilization than any of the most richly favored nations of the Orient had ever brought forth. With only a limited cultural inheritance from the past to build upon as a foundation, they produced intellectual and artistic achievements which have served ever since as the chief inspiration to man in his quest for wisdom and beauty. It seems reasonable to conclude also that they achieved a more normal and more rational mode of living than most other peoples who have strutted and fretted their hour upon this planet. The absence of violent revolution except in the earlier period, the infrequency of brutal crimes, and the contentment with simple amusements and modest wealth all point to a comparatively happy and satisfied existence. Moreover, the sane moral attitude of the Greek helped to keep him almost entirely free from the nervous instability and emotional conflicts which wreak so much havoc in modern society. Suicide, for example, was exceedingly rare in Greece.[1]

Undesirable features of Greek life

It is necessary to be on our guard, however, against certain uncritical judgments which are sometimes expressed in reference to the achievement of the Greeks. We must not assume that all of the natives of Hellas were as cultured, wise, and free as the citizens of Athens and of the Ionian states across the Aegean. The Spartans, the Arcadians, the Thessalians, and probably the majority of the Boeotians remained untutored and benighted from the beginning to the end of their history. Furthermore, the Athenian civilization itself was not without its defects. It permitted some exploitation of the weak, especially of the ignorant slaves who toiled in the mines. It was based upon a principle of racial exclusiveness which reckoned every man a foreigner whose parents were not both Athenians and consequently denied political rights to the majority of the inhabitants of the country. Its statecraft was not sufficiently enlightened to avoid the pitfalls of imperialism and even of aggressive war. Finally, the attitude of its citizens was not always tolerant and just. Socrates was put to death for his opinions, and two other philosophers, Anaxagoras and Protagoras, were forced to leave the country.[2]

[1] For a discussion of this point see E. A. Westermarck, *The Origin and Development of Moral Ideas*, pp. 247 ff.

[2] It must be conceded, however, that the record of the Athenians for tolerance

Nor is it true that the Hellenic influence has really been as great as is commonly supposed. No intelligent student could accept the sentimental verdict of Shelley: "We are all Greeks; our laws, our literature, our religion, our arts have their roots in Greece." Our laws do not really have their roots in Greece but chiefly in Hellenistic and Roman sources. Much of our poetry is undoubtedly Greek in inspiration, but such is not the case with most of our prose literature. Our religion is no more than partly Greek; except as it was influenced by Plato, Aristotle, and the Romans, it reflects primarily the spirit of the Orient. Even our arts take their form and meaning from Rome as much as from Greece. Actually, modern civilization has been the result of the convergence of several influences coming from a variety of sources. The influence from Greece has been partly overshadowed by heritages from the Near Orient and from the Romans and the Germans. Philosophy appears to have been the only important segment of Greek civilization which has been incorporated into modern culture virtually intact.

Hellenic influence sometimes exaggerated

In spite of all this, the Hellenic adventure was of profound significance for the history of the world. For the Greeks were the founders of nearly all those ideals which we commonly think of as peculiar to the West. The civilizations of the ancient Orient, with the exception, to a certain extent, of the Hebrew, Egyptian, and Chinese, were dominated by absolutism, supernaturalism, ecclesiasticism, the denial of both body and mind, and the subjection of the individual to the group. Their political regime was the reign of force as expressed in an absolute monarch supported by a powerful priesthood. Their religion was the worship of omnipotent gods who demanded that man should humble and despise himself for the purpose of their greater glory. Culture in these mighty empires served mainly as an instrument to magnify the power of the state and to enhance the prestige of rulers and priests.

The influence of the Greeks on the West

By contrast, the civilization of Greece, notably in its Athenian form, was founded upon ideals of freedom, optimism, secularism, rationalism, the glorification of both body and mind, and a high regard for the dignity and worth of the individual man. In so far as the individual was subjected at all, his subjection was to the rule of the majority. Religion was worldly and practical, serving the interests of human beings. Worship of the gods was a means for the ennoblement of man. As opposed to the ecclesiasticism of the Orient, the Greeks had no organized priesthood at all. They kept their priests in the background and refused under any circumstances to allow them to define dogma or to govern the realm of intellect. In addition, they excluded them from control over the sphere of morality.

Contrast of Greek and Oriental ideals

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was better than that of most other nations, both ancient and modern. There was probably more freedom of expression in Athens during the war with Sparta than there was in the United States during the war of 1917–1918 with Germany.



The Acropolis Today. In the commanding position in the center is the Parthenon. Immediately to the left is the Erechtheum with its Porch of the Maidens facing the Parthenon. Farther to the left is the colonnaded entrance building.

The culture of the Greeks was the first to be based upon the primacy of intellect—upon the supremacy of the spirit of free inquiry. There was no subject they feared to investigate, or any question they regarded as excluded from the province of reason. To an extent never before realized, mind was supreme over faith; logic and science over superstition.

CHAPTER 11 The Hellenistic Civilization

A new stage in world history

The death of Alexander the Great in 323 B.C. marked the beginning of a new stage in world history. Hellenic civilization, properly defined, was now at an end. The fusion of cultures and intermingling of peoples resulting from Alexander's conquests had accomplished the overthrow of most of the ideals represented by the Greeks in their prime. Gradually a new pattern of civilization emerged based upon a mixture of Greek and Oriental elements. To this new civilization, which lasted until about the beginning of the Christian era, the name Hellenistic is the one most commonly applied.

While the Hellenistic Age is sometimes regarded as simply a final

chapter in the history of Greece, this is by no means correct. The centuries which followed the death of Alexander were so markedly different from the Golden Age of Greece that they cannot be accurately regarded as a continuation of it. Though the language of the new era was Greek, and though persons of Greek nationality continued to play an active role in many affairs, the spirit of the culture was largely the spirit of the Orient. The classical ideal of democracy was now superseded by despotism perhaps as rigorous as any that Egypt or Persia had ever produced. The Hellenic devotion to simplicity and the golden mean gave way to extravagance in art and to a love of luxury and riotous excess. The Athenian economic system of small-scale production was supplanted by the growth of big business and ruthless competition for profits. Though progress in science continued, the sublime confidence in the power of the mind which had characterized the teachings of most of the philosophers from Thales to Aristotle was swallowed up in defeatism and ultimately in the sacrifice of logic to faith. In view of these changes it seems justifiable to conclude that the Hellenistic Age was really the era of a new civilization as distinct from the Greek as modern civilization from the culture of the Middle Ages.

Comparison of the Hellenistic Age with the Golden Age of Greece

1. Hellenistic Culture: Philosophy, Literature, and Art

Hellenistic philosophy went through a peculiar evolution—or retrogression, it might almost be better to say. During the first stage it was still under the influence of Greek thought and consequently showed an elemental regard for reason as the key to the solution of man's problems. During what may be considered a second stage, skepticism concerning all truth and all values resulted in the rejection of reason entirely. Toward the end of the civilization philosophy degenerated into a barren mysticism, with the consequence that the whole intellectual approach, whether based upon reason or experience, was thrown into the discard. Despite the fundamental differences in their teachings, the philosophers of the Hellenistic Age were all agreed upon one thing: the necessity of finding some way of salvation for man from the hardships and evils of his existence.

Gradual retrogression in philosophy

The first and most important of the Hellenistic philosophies were Epicureanism and Stoicism, both of which originated about 300 B.C. The founders were, respectively, Epicurus and Zeno, who were residents of Athens, though the former was born on the island of Samos, while the latter was a native of Cyprus, probably of Phoenician descent. Epicureanism and Stoicism had several features in common. Both were individualistic, concerned not with the welfare of society primarily, but with the good of the individual. Both were materialistic, denying categorically the existence of any spiritual substances; even divine beings and the soul were declared to be formed of matter. In Stoicism and Epicureanism alike there were definite traces

Epicureanism and Stoicism

of defeatism, since both of them implied that the efforts of man are futile and suggested a retreat into Oriental quietism as an aim for the wise to pursue. Lastly, the two philosophies were similar in their doctrines that concepts and abstractions are nothing but names, that only particular things are real, and that all knowledge has its basis in sense perception.

The Stoics pursue tranquillity of mind through fatalism

But in many ways the two systems were quite different. Zeno and his principal disciples taught that the cosmos is an ordered whole in which all contradictions are resolved for ultimate good. Evil is, therefore, relative; the particular misfortunes which befall human beings are but necessary incidents to the final perfection of the universe. Everything that happens is rigidly determined in accordance with rational purpose. Man is not master of his fate; his destiny is a link in an unbroken chain. He is free only in the sense that he can accept his fate or rebel against it. But whether he accepts or rebels, he cannot overcome it. The supreme duty of man is to submit to the order of the universe in the knowledge that that order is good; in other words, to resign himself as graciously as possible to his fate. Through such an act of resignation he will attain to the highest happiness, which consists in tranquillity of mind. The individual who is most truly happy is therefore the man who by the assertion of his rational nature has accomplished a perfect adjustment of his life to the cosmic purpose and has purged his soul of all bitterness and whining protest against evil turns of fortune.

The ethical and social teachings of the Stoics

The Stoics developed an ethical and social theory which accorded well with their general philosophy described above. Believing that the highest good consists in serenity of mind, they naturally emphasized duty and self-discipline as cardinal virtues. Recognizing the prevalence of particular evil, they taught that men should be tolerant and forgiving in their attitudes toward each other. They denied racial exclusiveness and held that all men are brothers under the fatherhood of one God. Unlike their contemporaries, the Cynics, they did not recommend that man should withdraw from society but urged participation in public affairs as a duty for the citizen of rational mind. They condemned slavery and war, but it was far from their purpose to preach any crusade against these evils. They were disposed to think that the results which would flow from violent measures of social change would be worse than the diseases they were supposed to cure. Besides, what difference did it make that the body should be in bondage so long as the mind was free? Despite its negative character the Stoic philosophy was the noblest product of the Hellenistic Age. Its equalitarianism, pacifism, and humanitarianism were important factors in mitigating the harshness not only of that time but of later centuries as well.

Whereas the Stoics went back to Heracleitus for much of their conception of the universe, the Epicureans derived their metaphysics chiefly from Democritus. Epicurus taught that the basic ingredients

of all things are minute, indivisible atoms, and that change and growth are the results of the combination and separation of these particles. Nevertheless, while accepting the materialism of the atomists, Epicurus rejected their absolute mechanism. He denied that an automatic, mechanical motion of the atoms can be the cause of all things in the universe. Though he admitted that the atoms move downward in perpendicular lines because of their weight, he insisted upon endowing them with a spontaneous ability to swerve from the perpendicular and thereby to combine with each other. The chief reason for this peculiar modification of the atomic theory was to make possible a belief in human freedom. If the atoms were capable only of mechanical motion, then man, who is made up of atoms, would be reduced to the status of an automaton; and fatalism would be the law of the universe. In this repudiation of the mechanistic interpretation of life, Epicurus was probably closer to the Hellenic spirit than either Democritus or the Stoics.

Epicurus revives atomism but rules out determinism

The ethical philosophy of the Epicureans was based upon the doctrine that the highest good for man is pleasure. But they did not include all forms of indulgence in the category of genuine pleasure. The so-called pleasures of the debauched man should be avoided, since every excess of carnality must be balanced by its portion of pain. On the other hand, a moderate satisfaction of bodily appetites is permissible and may be regarded as a good in itself. Better than this is mental pleasure, sober contemplation of the reasons for the choice of some things and the avoidance of others, and mature reflection upon satisfactions previously enjoyed. The highest of all pleasures, however, consists in serenity of soul, in the complete absence of both mental and physical pain. This end can be best achieved through the elimination of fear, especially fear of the supernatural, since that is the sovereign source of mental pain. Man must recognize from the study of philosophy that the soul is material and therefore cannot survive the body, that the universe operates of itself, and that the gods do not intervene in human affairs. The gods live remote from the world and are too intent upon their own happiness to bother about what takes place on earth. Since they do not reward or punish men either in this life or in a life to come, there is no reason why they should be feared. The Epicureans thus came by a different route to the same general conclusion as the Stoics—the supreme good is tranquillity of mind.

The Epicureans pursue tranquillity of mind through overcoming fear of the supernatural

The ethics of the Epicureans as well as their political theory rested squarely upon a utilitarian basis. In contrast with the Stoics, they did not insist upon virtue as an end in itself but taught that the only reason why man should be good is to increase his own happiness. In like manner, they denied that there is any such thing as absolute justice; laws and institutions are just only in so far as they contribute to the welfare of the individual. Certain rules have been found necessary in every complex society for the maintenance of security and

The ethical and political theories of the Epicureans

order. Men obey these rules solely because it is to their advantage to do so. Thus the origin and existence of the state are rooted directly in self-interest. Generally speaking, Epicurus held no high regard for either political or social life. He considered the state as a mere convenience and taught that the wise man should take no active part in public life. Unlike the Cynics, he did not propose that man should abandon civilization and return to nature; yet his conception of the happiest life was essentially passive and defeatist. The wise man will recognize that he cannot eradicate the evils in the world no matter how strenuous and intelligent his efforts; he will therefore withdraw to "cultivate his garden," study philosophy, and enjoy the fellowship of a few congenial friends.

The defeatist philosophy of the Skeptics

A more radically defeatist philosophy was that propounded by the Skeptics. Although Skepticism was founded by Pyrrho, a contemporary of Zeno and Epicurus, it did not reach the zenith of its popularity until about a century later under the influence of Carneades (214–129 B.C.). The chief source of inspiration of the Skeptics was the Sophist teaching that all knowledge is derived from sense perception and therefore must be limited and relative. From this they deduced the conclusion that we cannot prove anything. Since the impressions of our senses deceive us, no truth can be certain. All we can say is that things *appear* to be such and such; we do not know what they really *are*. We have no definite knowledge of the supernatural, of the meaning of life, or even of right and wrong. It follows that the sensible course to pursue is suspension of judgment; this alone can lead to happiness. If man will abandon the fruitless quest for absolute truth and cease worrying about good and evil, he will attain that equanimity of mind which is the highest satisfaction that life affords. The Skeptics were even less concerned than the Epicureans with political and social problems. Their ideal was the typically Hellenistic one of escape for the individual from a world he could neither understand nor reform.

The new religious philosophies

Hellenistic thought reached its lowest point in the philosophies of Philo Judaeus and the Neo-Pythagoreans in the last century B.C. and the first century A.D. The proponents of the two systems were in general agreement as to their basic teachings, especially in their predominantly religious viewpoint. They believed in a transcendent God so far removed from the world as to be utterly unknowable to mortal minds. They conceived the universe as being sharply divided between spirit and matter. They considered everything physical and material as evil; man's soul is imprisoned in his body, from which an escape can be effected only through rigorous denial and mortification of the flesh. Their attitude was mystical and anti-intellectual: truth comes neither from science nor from reason but from revelation; the feeble deductions of the human mind are worthy of nothing but contempt; the ultimate aim in life is to accomplish a mystic union with God, to lose one's self in the divine.

Hellenistic literature is significant mainly for the light which it

throws upon the character of the civilization. Most of the writings showed little originality or depth of thought. But they poured forth from the hands of the copyists in a profusion that is almost incredible when we consider that the art of printing by movable type was unknown. The names of at least 1100 authors have been discovered already, and more are being added from year to year. Much of what they wrote was trash, comparable to the Sunday supplements and cheap novels of our own day. Nevertheless, there were several works of more than mediocre quality and a few which met the highest standards ever set by the Greeks.

The profusion of ephemeral literature

The leading types of Hellenistic poetry were the drama, the pastoral, and the mime. Drama was almost exclusively comedy, represented mainly by the plays of Menander. His plays were entirely different from the comedy of Aristophanes. They were distinguished by naturalism rather than by satire, by preoccupation with the seamy side of life rather than with political or intellectual issues. Their dominant theme was romantic love, with its pains and pleasures, its intrigues and seductions, and its culmination in happy marriage. The greatest author of pastorals and mimes was Theocritus of Syracuse, who wrote in the first half of the third century B.C. His pastorals, as the name implies, celebrate the charm of life in the country and idealize the simple pleasures of rustic folk. The mimes, on the other hand, portray in colorful dialogue the squabbles, ambitions, and varied activities of the bourgeoisie in the great metropolitan cities.

Hellenistic poetry

The field of prose literature was dominated by the historians, the biographers, and the authors of utopias. By far the ablest of the writers of history was Polybius of Megalopolis, who lived during the second century B.C. From the standpoint of his scientific approach and his zeal for truth, he probably deserves to be ranked second only to Thucydides among all the historians in ancient times; but he excelled Thucydides in his grasp of the importance of social and economic forces. Although most of the biographies were of a light and gossipy character, their tremendous popularity bears eloquent testimony to the literary tastes of the time. Even more significant was the popularity of the utopias, or descriptive accounts of ideal states. Virtually all of them depicted a life of social and economic equality, free from greed, oppression, and strife, on an imaginary island or in some distant, unfamiliar region. Generally in these paradises money was considered to be unknown, trade was prohibited, all property was held in common, and all men were required to work with their hands in producing the necessaries of life. We are probably justified in assuming that the profusion of this utopian literature was a direct result of the rottenness and injustice of Hellenistic society and a consciousness of the need for reform.

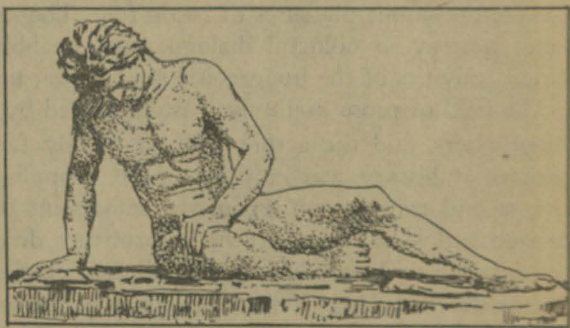
Historians, biographers, and authors of utopias

Hellenistic art preserved only a few of the superior qualities of the art of the Greeks. In place of the humanism, balance, and restraint which had characterized the architecture and sculpture of the Golden

Hellenistic art

Age, qualities of exaggerated realism, sensationalism, and voluptuousness now became dominant. The simple and dignified Doric and Ionic temples gave way to luxurious palaces, costly mansions, and elaborate public buildings and monuments symbolical of power and wealth. A typical example was the great lighthouse of Alexandria which rose to a height of nearly 400 feet, with three diminishing stories and eight columns to support the light at the top. Sculpture likewise exhibited tendencies in the direction of extravagance and sentimentality. Many of the statues and figures in relief were huge and some of them almost grotesque. Violent emotionalism and sordid realism were features common to the majority. Among the examples of this type of sculpture may be mentioned the *Laocoön* and the frieze of the Great Altar of Zeus at Pergamum with its giant gods, ferocious animals, and hybrid monsters mingled in desperate combat to symbolize the struggle of Greeks with Gauls. But by no means all of Hellenistic sculpture was overwrought and grotesque. Some of it was distinguished by a calmness and poise and compassion for human suffering reminiscent of the best work of the great fourth-century artists. Statues which exemplify these superior qualities include the *Aphrodite of Melos* (*Venus de Milo*) and the *Winged Victory of Samothrace.*





The Dying Gaul. A good example of Hellenistic realism in sculpture, which often reflected a preoccupation with the morbid and sensational. Every detail of the warrior's agony is dramatically portrayed. Now in the Capitoline Museum, Rome.

The Winged Victory of Samothrace. In this figure and in the *Venus de Milo*, Hellenistic sculptors preserved some of the calmness and devotion to grace and proportion characteristic of Hellenic art in the Golden Age. Now in the Louvre.

2. *The First Great Age of Science*

The most brilliant age in the history of science prior to the seventeenth century A.D. was the period of the Hellenistic civilization. In-

deed, many of the achievements of the modern age would scarcely have been possible without the discoveries of the scientists of Alexandria, Syracuse, Pergamum, and other great cities of the Hellenistic world. The reasons for the phenomenal development of science in the centuries after the downfall of Alexander's empire are not far to seek. Alexander himself had given some financial encouragement to the progress of research. More important was the stimulus provided for intellectual inquiry by the fusion of Chaldean and Egyptian science with the learning of the Greeks. Possibly a third factor was the new interest in luxury and comfort and the demand for practical knowledge which would enable man to solve the problems of a disordered and unsatisfying existence.

Factors responsible for the remarkable progress of science

The sciences which received the major attention in the Hellenistic Age were astronomy, mathematics, geography, medicine, and physics. Chemistry as a pure science was practically unknown. Except for the work of Theophrastus, who was the first to recognize the sexuality of plants, the biological sciences were also largely neglected. Neither chemistry nor biology bore any definite relationship to trade or to the forms of industry then in existence and apparently they were not regarded as having much practical value.

The most popular sciences

The most famous of the earlier astronomers of this time was Aristarchus of Samos (310–230 B.C.), who is sometimes called the "Hellenistic Copernicus." As a result of his discovery that the apparent immobility of the "fixed" stars is due to their vast distance from the earth, he was the first to have any adequate conception of the enormous size of the universe. But his chief title to fame comes from his deduction that the earth and the other planets revolve around the sun. Unfortunately this deduction was not accepted by his successors. It conflicted with the teachings of Aristotle and with the anthropocentric ideas of the Greeks. Besides, it was not in harmony with the beliefs of the Jews and other Orientals who made up so large a percentage of the Hellenistic population. The only other astronomer of much importance in the Hellenistic Age was Hipparchus, who did his most valuable work in Alexandria in the latter half of the second century B.C. His chief contributions were the invention of the astrolabe, the preparation of the best chart of the heavens known to antiquity, the approximately correct calculation of the diameter of the moon and its distance from the earth, and the discovery of the precession of the equinoxes. His fame was eventually overshadowed, however, by the reputation of Ptolemy of Alexandria, the last of the Hellenistic astronomers. Although Ptolemy made few original discoveries, he systematized the work of others. His principal writing, the *Almagest*, based upon the geocentric theory, was handed down to medieval Europe as the classic summary of ancient astronomy.

Astronomy

Closely allied with astronomy were two other sciences, mathematics and geography. The Hellenistic mathematician of greatest re-

Mathematics and geography

nown was of course Euclid (*ca.* 323–*ca.* 285 B.C.), erroneously considered the founder of geometry. Until the middle of the nineteenth century his *Elements of Geometry* remained the accepted basis for the study of that branch of mathematics. Much of the material in this work was not original but was compiled as a synthesis of the discoveries of others. The most original of the Hellenistic mathematicians was probably Hipparchus, who laid the foundations of both plane and spherical trigonometry. Hellenistic geography owed most of its development to Eratosthenes (*ca.* 276–*ca.* 194 B.C.), astronomer, poet, philologist, and librarian of Alexandria. By means of sun dials placed some hundreds of miles apart, he calculated the circumference of the earth with an error of less than 200 miles. He produced the most accurate map that had yet been devised, with the surface of the earth divided into degrees of latitude and longitude. He propounded the theory that all of the oceans are really one, and he was the first to suggest the possibility of reaching India by sailing west. One of his successors divided the earth into the five climatic zones which are still recognized and explained the ebb and flow of the tides as due to the influence of the moon.

Medicine: the development of anatomy

Perhaps none of the Hellenistic advances in science surpassed in importance the progress in medicine. Especially significant was the work of Herophilus of Chalcedon, who conducted his researches in Alexandria about the beginning of the third century. Without question he was the greatest anatomist of antiquity and, according to Galen, the first to practice human dissection. Among his most important achievements were a detailed description of the brain, with an attempt to distinguish between the functions of its various parts; the discovery of the significance of the pulse and its use in diagnosing illness; and the discovery that the arteries contain blood alone, not a mixture of blood and air as Aristotle had taught, and that their function is to carry blood from the heart to all parts of the body. The value of this last discovery in laying the basis for a knowledge of the circulation of the blood can hardly be overestimated.

physiology

The ablest of the successors of Herophilus was Erasistratus, who flourished in Alexandria about the middle of the third century. He is considered the founder of physiology as a separate science. Not only did he practice dissection, but he is believed to have gained a great deal of his knowledge of bodily functions from vivisection. He discovered the valves of the heart, distinguished between motor and sensory nerves, and taught that the ultimate branches of the arteries and veins are connected. He was the first to reject absolutely the humoral theory of disease and to condemn excessive blood-letting as a method of cure. Unfortunately this theory was revived by Galen, the great encyclopedist of medicine who lived in the Roman Empire in the second century A.D.

Prior to the third century B.C. physics had been a branch of philosophy. It was made a separate experimental science by Archimedes

of Syracuse. Archimedes discovered the law of floating bodies or specific gravity and formulated with scientific exactness the principles of the lever, the pulley, and the screw. Among his memorable inventions were the compound pulley, the tubular screw for pumping water, the screw propeller for ships, and the burning lens. Although he has been called the "technical Yankee of antiquity," there is evidence that he set no high value upon his ingenious mechanical contraptions and preferred to devote his time to pure scientific research.

Physics

Certain other individuals in the Hellenistic Age were quite willing to give all their attention to applied science. Pre-eminent among them was Hero or Heron of Alexandria, who lived in the last century B.C. The record of inventions credited to him almost passes belief. The list includes a fire engine, a siphon, a force pump, a hydraulic organ, a slot machine, a catapult operated by compressed air, a thermoscope, and even a steam engine. How many of these inventions were really his own is impossible to say, but there appears to be no question that such contrivances were actually in existence in his time or soon thereafter. Nevertheless, the total progress in applied science was comparatively slight, probably for the reason that human labor continued to be so abundant and cheap that it was not worth while to substitute the labor of machines.

Applied science

CHAPTER 12 Roman Civilization

Long before the glory of Greece had begun to fade, another civilization, derived in large measure from that of the Greeks, had started its growth on the banks of the Tiber in Italy. In fact, by the time the Greeks had entered their Golden Age, Rome was already a dominant power on the Italian peninsula. For more than six centuries thereafter her might increased, and she still maintained her supremacy over the civilized world when the glory of Greece was no more than a memory.

The rise of Rome

But the Romans never equaled the Greeks in intellectual or artistic accomplishments. The reasons may have been partly geographic. Except for some excellent marble and small quantities of copper, gold, and iron, Italy has no mineral resources. Her extensive coast line is broken by only two good harbors, Tarentum and Naples. On the other hand, the amount of her fertile land is much larger than that of Greece. As a consequence, the Romans were practically destined to remain a predominantly agrarian people through the greater part of their history. They never enjoyed the intellectual stimulus which comes from trading with other nations. In addition to all this, the topography of Italy is such that the peninsula was more

Why Roman civilization was generally inferior to that of the Greeks

easily accessible to invasion than Greece. The Alps opposed no effectual barrier to the influx of peoples from central Europe, while the low-lying coast in many places invited conquest by sea. As a result, domination of the country by force was more common than peaceful intermingling of immigrants with original settlers. For this reason the Romans became absorbed in military pursuits almost from the moment of their settlement on Italian soil, since they were forced to defend their own conquests against other invaders.

1. Rome Becomes Sophisticated

Rome under the influence of Hellenistic civilization

During the last two centuries of republican history Rome came under the influence of Hellenistic civilization. The result was a modest flowering of intellectual activity and a further impetus to social change beyond what the Punic Wars had produced. The fact must be noted, however, that several of the components of the Hellenistic pattern of culture were never adopted by the Romans at all. The science of the Hellenistic Age, for example, was largely ignored, and the same was true of some of its art.

Roman Epicureanism: Lucretius

One of the most notable effects of Hellenistic influence was the adoption of Epicureanism and Stoicism by numerous Romans of the upper classes. The most renowned of the Roman exponents of the Epicurean philosophy was Lucretius (98–55 B.C.), author of a didactic poem entitled *On the Nature of Things*. In writing this work Lucretius was animated by the desire to explain the universe in such a way as to liberate man from all fear of the supernatural, which he regarded as the chief obstacle to peace of soul. Worlds and all things in them, he taught, are the results of fortuitous combinations of atoms. Though he admitted the existence of the gods, he conceived of them as living in eternal peace, neither creating nor governing the universe. Everything is a product of a mechanical evolution, including man himself and his habits, institutions, and beliefs. Since mind is indissolubly linked with matter, death means utter extinction; consequently, no part of the human personality can survive to be rewarded or punished in an after-existence. Lucretius' conception of the good life was perhaps even more negative than that of Epicurus: what man needs, he asserted, is not enjoyment but "peace and a pure heart."

The Stoic philosophy of Cicero

Stoicism was introduced into Rome by Panaetius of Rhodes about 140 B.C. Although it soon came to include among its converts numerous influential leaders of public life, its most distinguished representative was Cicero (106–43 B.C.), the famous orator and statesman. While Cicero adopted doctrines from a number of philosophers, including both Plato and Aristotle, the fact remains that he derived far more of his ideas from the Stoics than from any other source. Certainly his chief ethical writings, *On Duty* and the *Tusculan Disputations*, reflect substantially the doctrines of Zeno and his school. The

basis of Cicero's ethical philosophy was the premise that virtue is sufficient for happiness, and that tranquillity of mind is the highest good. He conceived of the ideal man as one who has been guided by reason to an indifference toward sorrow and pain. In political philosophy Cicero went considerably beyond the earlier Stoics. He was one of the first to deny that the state is superior to the individual and taught that government had its origin in a compact among men for their mutual protection. In his *Republic* he set forth the idea of a higher law of eternal justice which is superior to the statutes and decrees of government. This law is not made by man but is a product of the natural order of things and is discoverable by reason. It is the source of those rights to which all men are entitled as human beings and which governments must not assail. As we shall see presently, this doctrine influenced considerably the development of the Roman law by the great jurists of the second and third centuries A.D. By reason of his contributions to political thought, and by virtue of his urbanity and tolerance, Cicero deserves to be ranked as one of the greatest men Rome ever produced. He typified the genius of the nation at its best.

Roman literary progress

Hellenistic influence was in large measure responsible for Roman literary progress in the last two centuries of the Republic. It now became the fashion among the upper classes to learn the Greek language and to strive to reproduce in Latin some of the more popular forms of Hellenistic literature. The most noteworthy results were the comedies of Plautus and Terence, written in imitation of the New Comedy of Menander; the passionate lyrics of Catullus; the histories of Sallust, which in spite of their Caesarist bias are among the most scientific ever produced in Rome; and the letters, essays, and orations of Cicero, which are generally regarded as the finest examples of Latin prose.

Plautus and Catullus

Several of the early Roman writers showed promise at times of equaling the originality and artistry of the Greeks in the classical age. Plautus, for instance, occasionally displayed a freshness of approach, a perception of philosophic implications, and a capacity for social satire. Of humble origin himself, he delighted in ridiculing the mores and institutions which the respectable classes esteemed so highly. He allowed his genius to be thwarted, however, by too slavish a dependence upon the stock characters and themes of Hellenistic comedy. After his time Latin drama degenerated into lifeless formalism. The other of the most original writers of this period was Catullus (84–54 B.C.), one of the greatest lyric poets of all time. He is best known for his passionate love poems written to describe his tortured feelings while infatuated with the dissolute wife of a prominent politician. For years he was unable to free himself from his ardor, though maddened by jealousy of his rivals. But not all of his poetry dealt with the expression of personal emotion. Apparently he was an ardent republican, and in the latter part of his life he wrote coarse lampoons

attacking Pompey and Caesar for their demagogic ambitions.

2. Culture and Life in the Period of the Principate

Cultural progress under the Principate

From the standpoint of variety of intellectual and artistic interests the period of the Principate outshone all other ages in the history of Rome. Most of the progress took place, however, in the years from 27 B.C. to 200 A.D. It was between these years that Roman philosophy attained its characteristic form. This period witnessed also the feeble awakening of an interest in science, the growth of a distinctive art, and the production of the best literary works. After 200 A.D. economic and political decay stifled all further cultural growth.

Roman Stoicism

Stoicism was now the prevailing philosophy of the Romans. Much of the influence of Epicureanism lingered and found occasional expression in the writings of the poets, but as a system it had ceased to be popular. The reasons for the triumph of Stoicism are not hard to discover. With its emphasis upon duty, self-discipline, and subjection to the natural order of things, it accorded well with the ancient virtues of the Romans and with their habits of conservatism. Moreover, its insistence upon civic obligations and its doctrine of cosmopolitanism appealed to the Roman political-mindedness and pride in world empire. Epicureanism, on the other hand, was a little too negative and individualistic to agree with the collectivist traditions of Roman history. It seemed not only to repudiate the idea of any purpose in the universe, but even to deny the value of human effort. Since the Romans were men of action rather than speculative thinkers, the Epicurean ideal of the solitary philosopher immersed in the problem of his own salvation could have no permanent attraction for them. It is necessary to observe, however, that the Stoicism developed in the days of the Principate was somewhat different from that of Zeno and his school. The old physical theories borrowed from Heracleitus were now discarded, and in their place was substituted a broader interest in politics and ethics. There was a tendency also for Roman Stoicism to assume a more distinctly religious flavor than that which had characterized the original philosophy.

Seneca, Epictetus, and Marcus Aurelius

Three eminent apostles of Stoicism lived and taught in Rome in the two centuries which followed the rule of Augustus: Seneca (3 B.C.–65 A.D.), millionaire adviser for a time to Nero; Epictetus, the slave (60?–120 A.D.); and the Emperor Marcus Aurelius (121–180 A.D.). All of them agreed that inner serenity is the ultimate goal to be sought, that true happiness can be found only in surrender to the benevolent order of the universe. They preached the ideal of virtue for virtue's sake, deplored the sinfulness of man's nature, and urged obedience to conscience as the voice of duty. Seneca and Epictetus adulterated their philosophy with such deep mystical yearnings as to make it almost a religion. They worshiped the cosmos as divine, governed by an all-powerful Providence who ordains all that hap-

pens for ultimate good. Submission to the order of nature is thus equivalent to placing oneself in harmony with the will of God, and is therefore conceived as a religious duty. The last of the Roman Stoics, Marcus Aurelius, was more fatalistic and less hopeful. Although he did not reject the conception of an ordered and rational universe, he shared neither the faith nor the dogmatism of the earlier Stoics. He was confident of no blessed immortality to balance the sufferings of one's earthly career. Living in a melancholy time, he was inclined to think of man as a creature buffeted by evil fortune for which no distant perfection of the whole could fully atone. He urged, nevertheless, that men should continue to live nobly, that they should neither abandon themselves to gross indulgence nor break down in angry protest, but that they should derive what contentment they can from dignified resignation to suffering and tranquil submission to death.

The literary achievements of the Romans bore a definite relation to their philosophy. This was especially true of the works of the most distinguished writers of the Augustan Age. Horace, for example, in his famous *Odes* drew copiously from the teachings of both Epicureans and Stoics. He confined his attention, however, to their doctrines of a way of life, for like most of the Romans he had little curiosity about the nature of the world. He developed a philosophy which combined the Epicurean justification of pleasure with the Stoic bravery in the face of trouble. While he never reduced pleasure to the mere absence of pain, he was sophisticated enough to know that the highest enjoyment is possible only through the exer-



Marcus Aurelius. This mounted figure of the great emperor-philosopher is one of the few equestrian statues produced in the ancient world. It was originally entirely gilded. Now on the Piazza del Campidoglio, Rome.

Roman literature: Horace

cise of rational control. Perhaps the following lines express about as well as any others the essence of his view of life:

> Be brave in trouble; meet distress
> With dauntless front; but when the gale
> Too prosperous blows, be wise no less
> And shorten sail.

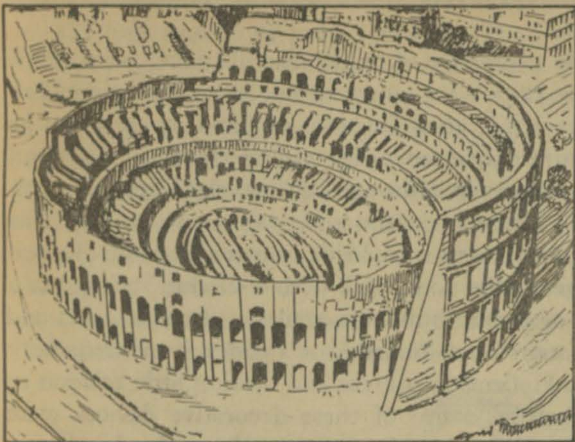
Vergil, Ovid, and Livy

Vergil likewise reflects a measure of the philosophical temper of his age. Though his *Eclogues* convey something of the Epicurean ideal of quiet pleasure, Vergil was much more of a Stoic. His utopian vision of an age of peace and abundance, his brooding sense of the tragedy of human fate, and his idealization of a life in harmony with nature indicate an intellectual heritage similar to that of Seneca and Epictetus. Vergil's most noted work, the *Aeneid*, like several of the *Odes* of Horace, was a purposeful glorification of Roman imperialism. The *Aeneid* in fact was an epic of empire recounting the toils and triumphs of the founding of the state, its glorious traditions, and its magnificent destiny. The only other major writers of the Augustan Age were Ovid and Livy. The former, the greatest of Roman elegiac poets, was the chief representative of the cynical and individualist tendencies of his day. His writings, although brilliant and witty, often reflected the dissolute tastes of the time, and their popularity gives evidence of the failure of the efforts of Augustus to regenerate Roman society. The chief title of Livy to fame rests upon his skill as a prose stylist. As a historian he was woefully deficient. His main work, a history of Rome, is replete with dramatic and picturesque narrative, designed to appeal to the patriotic emotions rather than to present the impartial truth.

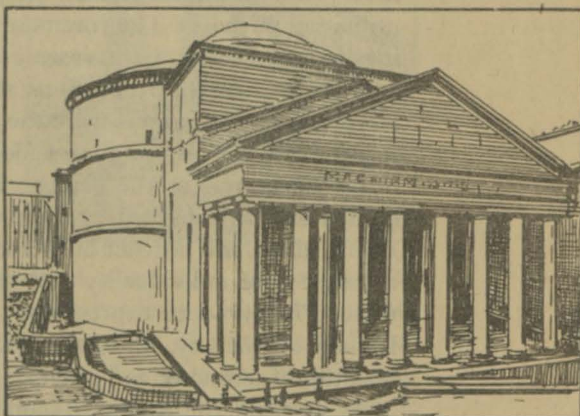
Petronius, Apuleius, Martial, Juvenal, and Tacitus

The literature of the period which followed the death of Augustus also exemplified conflicting social and intellectual tendencies. The novels of Petronius and Apuleius and the epigrams of Martial are specimens of individualist writing generally descriptive of the meaner aspects of life. The attitude of the authors is unmoral; their purpose is not to instruct or uplift but chiefly to tell an entertaining story or turn a witty phrase. An entirely different viewpoint is presented in the works of the other most important writers of this age: Juvenal, the satirist, and Tacitus, the historian. Juvenal wrote under the influence of the Stoics but with little intelligence and narrow vision. Laboring under the delusion that the troubles of the nation were due to moral degeneracy, he lashed the vices of his countrymen with the fury of an evangelist. A somewhat similar attitude characterized the writing of his younger contemporary, Tacitus. The best-known of Roman historians, Tacitus described the events of his age not entirely with a view to scientific analysis but largely for the purpose of moral indictment. In his *Annals* and *Histories* he painted a lurid picture of political chaos and social corruption. His description of

the customs of the ancient Germans in his *Germania* served to heighten the contrast between the manly virtues of an unspoiled race and the effeminate vices of the decadent Romans. Whatever his



The Colosseum. The Colosseum was built by the Roman emperors as a place of entertainment and public exhibition. It was the scene of gladiatorial combats and of the throwing of Christians to the lions.



The Pantheon, in Rome. Built by the Emperor Hadrian and dedicated to the deities of the seven planets, the Pantheon is a witness to the cosmopolitan religious attitude of the Romans. The distinctive feature of the interior is the dome, 140 feet in diameter, which still stands virtually unimpaired. For upwards of 16 centuries the building has been used as a Christian church.

failings as a historian, he was a master of ironic wit and brilliant aphorism. Referring to the boasted *Pax Romana*, he makes a barbarian chieftain say: "They create a wilderness and call it peace."

Achievements in art

The period of the Principate was the period when Roman art first assumed its distinctive character as an expression of the national life. Before this time what passed for an art of Rome was really an importation from the Hellenistic East. Conquering armies brought back to Italy wagonloads of statues, reliefs, and marble columns as part of the plunder from Greece and Asia Minor. These became the property of wealthy publicans and bankers and were used to embellish their sumptuous mansions. As the demand increased, hundreds of copies were made, with the result that Rome came to have by the end of the Republic a profusion of objects of art which had no more cultural significance than the Rembrandts or Botticellis in the home of some modern broker. The aura of national glory which surrounded

the early Principate stimulated the growth of an art more nearly indigenous. Augustus himself boasted that he found Rome a city of brick and left it a city of marble. Nevertheless, much of the old Hellenistic influence remained until the talent of the Romans themselves was exhausted.

Architecture and sculpture

The arts most truly expressive of the Roman character were architecture and sculpture. Both were monumental, designed to symbolize power and grandeur rather than freedom of mind or contentment with life. Architecture contained as its leading elements the round arch, the vault, and the dome, although at times the Corinthian column was employed, especially in the construction of temples. The materials most commonly used were brick, squared stone blocks, and concrete, the last generally concealed with a marble facing. As a further adornment of public buildings, sculptured entablatures and façades, built up of tiers of colonnades or arcades, were frequently added. Copied from Hellenistic sources and bearing little relation to the rest of the structure, many of these decorative devices were showy and unseemly. Roman architecture was devoted primarily to utilitarian purposes. The foremost examples were government buildings, amphitheaters, baths, race courses, and private houses. Nearly all were of massive proportions and solid construction. Among the largest and most famous were the Pantheon, with its dome having a diameter of 142 feet, and the Colosseum, which could accommodate 65,000 spectators at the gladiatorial combats. Roman sculpture included as its main forms triumphal arches and columns, narrative reliefs, altars, and portrait busts and statues. Its distinguishing characteristics were individuality and naturalism. Even more than architecture it served to express the vanity and love of power of the Roman aristocracy, although some of it was marked by unusual qualities of harmony and grace.

Why the Romans accomplished little as scientists

As scientists the Romans accomplished comparatively little either in this period or in any other. Scarcely an original discovery of fundamental importance was made by a man of Latin blood. This fact seems strange when we consider that the Romans had the advantage of Hellenistic science as a foundation upon which to build. But they neglected their opportunity almost completely. Why should this have been so? It was due, first of all, to the circumstance that the Romans were absorbed in problems of government and military conquest. Forced to specialize in law, politics, and military strategy, they had very little time for investigation of nature. A reason of more vital importance was the fact that the Romans were too practical-minded. They had none of that divine fire which impels man to lose himself in the quest for unlimited knowledge. They had no vigorous intellectual curiosity about the world in which they lived. In short, they were not philosophers. Contrary to the popular notion, practical-mindedness is not of itself sufficient to carry scientific progress very far. Modern science would probably have died of undernourishment

long ago if it had had to depend solely upon the work of inventors and technologists.

Mainly because of this lack of talent for pure science, the achievements of the Romans were limited almost entirely to engineering and to the organization of public services. They built marvelous roads, bridges, and aqueducts. They provided the city of Rome with a water supply of 300,000,000 gallons daily. They established the first hospitals in the Western world and the first system of state medicine for the benefit of the poor. But their own writers on scientific subjects were hopelessly devoid of critical intelligence. The most renowned and the most typical of them was Pliny the Elder, who completed about 77 A.D. a voluminous encyclopedia of "science" which he called *Natural History*. This work was admittedly a compilation supposed to have been based upon the writings of nearly 500 different authors. The subjects discussed varied from cosmology to eco-

Lack of scientific originality



Roman Aqueduct at Segovia, Spain. Aqueducts for conveying water from the mountains to the larger cities of the empire were among the most splendid engineering accomplishments of the Romans. The picture shows the skill with which large blocks of stone were fitted together to form arches.

nomics. Despite the wealth of material it contains, the work is of limited value. Pliny was totally unable to distinguish between fact and fable. In his estimation, the weirdest tales of wonders and portents were to be accepted as of equal value with the most solidly established facts. He described the marvels of a primitive people whose feet all turned backward, of a country where females conceived at the age of five and died at the age of eight, and of a tiny Mediterranean fish which could cause ships to stand still merely by clinging to them. The other best-known author of an encyclopedia of science was Seneca, the Stoic philosopher, who took his own life at Nero's command in 65 A.D. Seneca was less credulous than Pliny but no more original. Besides, he maintained that the purpose of all scientific study should be to divulge the moral secrets of nature. If there was any Latin who could be considered an original scientist, the title would have to be given to Celsus, who flourished during the reign of Tiberius. Celsus wrote a comprehensive treatise on medicine, including an excellent manual of surgery, but there is a strong suspicion that the entire work was compiled, if not actually translated, from the Greek. Among the operations he described were tonsillectomy, operations for cataracts and goiter, and plastic surgery.

No account of the scientific aspects of Roman civilization would

be complete without some mention of the work of Hellenistic scientists who lived in Italy or in the provinces during the period of the Principate. Nearly all of them were physicians. The most distinguished, although apparently not the most original, was Galen of Pergamum, who was active in Rome at various times during the latter half of the second century. While his fame rests primarily upon his medical encyclopedia, systematizing the learning of others, he is deserving of more credit for his own experiments which brought him close to a discovery of the circulation of the blood. He not only taught but proved that the arteries carry blood, and that severance of even a small one is sufficient to drain away all of the blood of the body in little more than half an hour. But Galen was not the only Hellenistic physician who made important contributions in this time. At least two others are entitled to more recognition than is commonly given to them: Soranus of Ephesus, the greatest gynecologist of antiquity and inventor of the speculum, and Rufus of Ephesus, who wrote the first accurate description of the liver and of the rhythm of the pulse, and was the first to recommend boiling of suspicious water before drinking it.

Hellenistic scientists in Italy

3. Roman Law

There is general agreement that the most important legacy which the Romans left to succeeding cultures was their system of law. This system was the result of a gradual evolution which may be considered to have begun with the publication of the Twelve Tables about 450 B.C. In the later centuries of the Republic the law of the Twelve Tables was modified and practically superseded by the growth of new precedents and principles. These emanated from different sources: from changes in custom, from the teachings of the Stoics, from the decisions of judges, but especially from the edicts of the praetors. The Roman praetors were magistrates who had authority to define and interpret the law in a particular suit and issue instructions to the jury for the decision of the case. The jury merely decided questions of fact; all issues of law were settled by the praetor, and generally his interpretations became precedents for the decision of similar cases in the future. Thus a system of judicial practice was built up in somewhat the same fashion as the English common law.

The early development of Roman law

It was under the Principate, however, that the Roman law attained its highest stage of development. This later progress was due in part to the extension of the law over a wider field of jurisdiction, over the lives and properties of aliens in strange environments as well as over the citizens of Italy. But the major reason was the fact that Augustus and his successors gave to certain eminent jurists the right to deliver opinions, or *responsa* as they were called, on the legal issues of cases under trial in the courts. The most prominent of the

Roman law under the Principate; the great jurists



THE ROMAN EMPIRE AT ITS GREATEST EXTENT, 98-117 A.D.
Hadrian's Wall
NORTH BRITAIN (Annexed 84 A.D.)
HIBERNIA
Oceanus Germanicus
BRITANNIA
Oceanus Atlanticus
Conquests to Albis River (Abandoned 17 A.D.)
Albis R.
Rhenus R.
GERMANIA
Limes Germanicus
RAETIA
Danuvius R.
DACIA
GALLIA
PANNONIA
ILLYRICUM
DALMATIA
HISPANIA
Tiber R.
Rome
Pontus Euxinus
Mare Caspium
Cyrus R.
Araxes R.
THRACIA
BITHYNIA
ARMENIA
MACEDONIA
ASIA
Ephesus
Athens
GALATIA
CAPPADOCIA
Tigres R.
Mare Internum
Syracuse
Antioch
MESOPOTAMIA
NUMIDIA
MAURETANIA
SYRIA
Euphrates R.
N
W
E
S
TRIPOLIS
Alexandria
Sinus Persicus
CYRENAICA
AFRICA
AEGYPTUS
Nilus R.
Sinus Arabicus
Miles
0 100 200 300 400 500

men thus designated from time to time were Gaius, Ulpian, Papinian, and Paulus. Although most of them held high judicial office, they had gained their reputations primarily as lawyers and writers on legal subjects. The responses of these jurists came to embody a science and philosophy of law and were accepted as the basis of Roman jurisprudence. It was typical of the Roman respect for authority that the ideas of these men should have been adopted so readily even when they upset, as they occasionally did, time-honored beliefs.

The three divisions of the Roman law

The Roman law as it was developed under the influence of the jurists comprised three great branches or divisions: the *jus civile*, the *jus gentium*, and the *jus naturale*. The *jus civile*, or civil law, was essentially the law of Rome and her citizens. As such it existed in both written and unwritten forms. It included the statutes of the Senate, the decrees of the Princeps, the edicts of the praetors, and also certain ancient customs operating with the force of law. The *jus gentium*, or law of peoples, was the law which was held to be common to all men regardless of nationality. It was the law which authorized the institutions of slavery and private ownership of property and defined the principles of purchase and sale, partnership, and contract. It was not superior to the civil law but supplemented it as especially applicable to the alien inhabitants of the empire.

The jus naturale

The most interesting and in many ways the most important branch of the Roman law was the *jus naturale*, or natural law. This was not a product of judicial practice at all but of philosophy. The Stoics had developed the idea of a rational order of nature which is the embodiment of justice and right. They had affirmed that all men are by nature equal, and that they are entitled to certain basic rights which governments have no authority to transgress. The father of the law of nature as a legal principle, however, was none of the Hellenistic Stoics, but Cicero. "True law," he declared, "is right reason consonant with nature, diffused among all men, constant, eternal. To make enactments infringing this law, religion forbids, neither may it be repealed even in part, nor have we power through Senate or people to free ourselves from it." This law is prior to the state itself, and any ruler who defies it automatically becomes a tyrant. Some of the later Stoics—Seneca in particular—elaborated the doctrine of a primordial state of nature in which all men were equal, and no one was exploited by another. In time, the wickedness and greed of some brought slavery and private property into existence; government therefore became necessary for the protection of the weak. With the exception of Gaius, who identified the *jus naturale* with the *jus gentium*, all of the great jurists subscribed to conceptions of the law of nature very similar to those of the philosophers. While the jurists did not regard this law as an automatic limitation upon the *jus civile*, they thought of it nevertheless as a great ideal to which the statutes and decrees of men ought to conform. This development of the concept of abstract justice as a legal principle was one of the

noblest achievements of the Roman civilization.

4. *The Roman Heritage*

Comparison of Rome and the modern world

It is tempting to believe that the modern world owes a vast debt to the Romans: first of all, because Rome is nearer to us in time than any of the other civilizations of antiquity; and secondly, because Rome seems to bear such a close kinship to the modern temper. The resemblances between Roman history and the history of Great Britain or the United States in the nineteenth and twentieth centuries have often been noted. The Roman economic evolution progressed all the way from a simple agrarianism to a complex urban system with problems of unemployment, monopoly, gross disparities of wealth, and financial crises. Roman society likewise exhibited its "modern" phenomena of divorce, declining birth rates, and love of spectacular amusements. The Roman Empire, in common with the British and the American, was founded upon conquest and upon visions of Manifest Destiny. It must not be forgotten, however, that the spirit of Rome was the spirit of classical man, and that, consequently, the similarities between the Roman and modern civilizations are not so important as they seem. As we have noted already, the Romans despised industrial activities, and they were incredibly



The Forum, the civic center of ancient Rome. In addition to public squares, the Forum included triumphal arches, magnificent temples, and government buildings. In the foreground is the Temple of Saturn. Behind it is the Temple of Antoninus and Faustina. The three columns at the extreme right are what is left of the Temple of Castor and Pollux, and in the farthest background is the Arch of Titus.

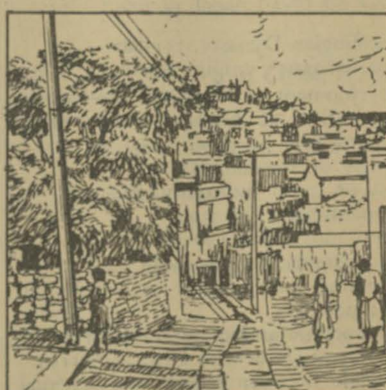
naïve in matters of science. Neither did they have any idea of the modern national state; the provinces were mere appendages, not integral parts of a body politic. It was largely for this reason that the Romans never developed an adequate system of representative government. Finally, the Roman conception of religion was vastly different from our own. Their system of worship, like that of the Greeks, was external and mechanical, not inward or spiritual in any sense. What Christians consider the highest ideal of piety—an emotional attitude of love for the divine—the Romans regarded as gross superstition.

The influence of Roman civilization

Nevertheless, the civilization of Rome was not without a definite influence upon later cultures. The form, if not the spirit, of Roman architecture was preserved in the ecclesiastical architecture of the Middle Ages and survives to this day in the design of most of our government buildings. The sculpture of the Augustan Age also lives on in the equestrian statues, the memorial arches and columns, and the portraits in stone of statesmen and generals which adorn our boulevards and parks. Although subjected to new interpretations, the law of the great jurists became an important part of the Code of Justinian and was thus handed down to the later Middle Ages. Modern lawyers and especially American judges frequently cite maxims originally invented by Gaius or Ulpian. Furthermore, the legal systems of nearly all Continental European countries today incorporate much of the Roman law. This law has had notable effects in strengthening the right of private ownership of property. It should not be forgotten either that Roman literary achievements furnished much of the inspiration for the revival of learning which spread over Europe in the twelfth century and reached its zenith in the Renaissance. Perhaps not so well known is the fact that the organization of the Catholic Church, to say nothing of part of its ritual, was adapted from the structure of the Roman state and the complex of the Roman religion. For example, the Pope still bears the title of Supreme Pontiff (*Pontifex Maximus*), which was used to designate the authority of the emperor as head of the civic religion. But the most important element in the Roman influence has probably been the idea of the absolute authority of the state. In the judgment of nearly all Romans, with the exception of philosophers like Cicero and Seneca, the state was legally omnipotent. However much the Roman may have detested tyranny, it was really only *personal* tyranny that he feared; the despotism of the Senate as the organ of popular sovereignty was perfectly proper. This conception survives to our own day in the popular conviction that the state can do no wrong, and especially in the doctrines of absolutist political philosophers that the individual has no rights except those which the state confers upon him.

CHAPTER 13 The Civilization of Medieval Europe

By long-established tradition the period of history from the fall of Rome about 400 A.D. to the beginning of the Italian Renaissance about 1300 is called the Middle Ages. In popular belief this period was an interlude of ignorance and superstition when man lived enveloped in a cowl, oblivious of the wonders of knowledge and concerned only with escape from the miseries of this world and the torments of hell. It is often forgotten that the Middle Ages witnessed the rise of universities, the building of Gothic cathedrals, the growth of cities, the founding of nation states, the beginning of parliaments, the development of the common law, and the splendid achievements of the Saracens in such fields as medicine, mathematics, physics, and chemistry. Though the earlier centuries were undoubtedly dark in some parts of Europe, such was by no means the case of the entire world or of the medieval period as a whole. In Western Asia and Northern Africa the Saracenic civilization maintained a high level of achievement from the eighth century to the fourteenth. The Byzantine Empire survived even longer, until its principal center at Constantinople was captured by the Ottoman Turks in 1453. India and China bloomed in their fullest splendor between 600 and 900 and were by no means stagnant during the remainder of the period.



Nazareth. A modern view of the small town in Judea where Jesus spent his early life, where he worked for a time as a carpenter and began his career of preaching.

1. The Christian Foundation of Early Medieval Culture

Factors influencing early medieval culture

Three main factors combined to produce the civilization of early medieval Europe: the Christian religion, the influence of the Germanic barbarians, and the heritage from the classical cultures. The effect of the third was probably less than that of the others. Outside the realm of philosophy the influence of the Greek and Hellenistic civilizations was comparatively slight. While the Roman heritage was still powerful, the men of the early Middle Ages rejected some

THE WORLD IN

	Western Europe	Byzantine Empire
	Rise of the Papacy, 50–300 Germanic migrations, 100–300	
300—		Rise of monasticism, *ca.* 300 Council of Nicaea, 325 Constantinople established as capital, 330
400—	Invasions of England by Angles and Saxons, 400–600 Decline of industry and commerce, 400–800 St. Augustine's *City of God*, 413–426 Merovingian Dynasty, 481–751	
500—	Ostrogothic rule in Italy, 493–552 Boethius' *Consolation of Philosophy*, 523	Justinian's empire, 527–565 Revision and codification of Roman law, 527–535 Construction of church of Santa Sophia, 532–537 Byzantine conquest of Italy, 535–552
	Lombard invasion of Italy, 568	
600—		
	Carolingian Dynasty, 751–887	Iconoclastic movement, 725–850
800—	Charlemagne's empire, 800–814 Development of feudalism, 800–1300 Unification of England under Saxon kings, 802 Treaty of Verdun, 843 Rise of papal monarchy, 850–1000 Scholasticism, 850–1300 Cluny movement, 950–1100 Holy Roman Empire, 962– Founding of national monarchy in France, 987	
1000—	Romanesque architecture, 1000–1150 Revival of trade with East, 1050–1150 Struggle between secular and spiritual powers, 1050–1150 Establishment of College of Cardinals, 1059 Norman Conquest of England, 1066 The Crusades, 1096–1204	Separation of Eastern and Western Churches, 1054 Battle of Manzikert, 1071
1100—	Growth of cities, 1100–1300 Rise of merchant and craft guilds, 1100–1300 Romances of chivalry, 1100–1300 Development of the sacramental system of the church, 1100–1300 First universities, *ca.* 1150 Gothic architecture, 1150–1300	

The Saracens	India and the Far East
	Rapid development of Buddhism in China, 200–500
	Flowering of Hindu culture, 300–800
	Adoption of Chinese system of writing in Japan, *ca.* 405
	Manufacture of glass and invention of firecrackers and magnetic compass in China, *ca.* 500
	Spread of Buddhism to Japan, *ca.* 552
Mohammed, 570?–632	
	Porcelain manufacture in China, *ca.* 600
The Hegira, 622	T'ang Dynasty in China, 618–907
Capture of Mecca, 630	Civil-service examinations in China, 618–
Conquest of Persia, Egypt, Palestine, Syria, North Africa, Spain, 632–732	
Division of Islam into sects—Sunnites, Shiites, and Sufis, *ca.* 640	Taika Reform Edict, creating imperial government in Japan based on Chinese model, 645
Development of steel manufacturing, textile manufacturing, leather tooling, and paper making, *ca.* 800–1400	Block printing in China, *ca.* 800
	Feudalism in Japan, rise of *Samurai*, 800–1600
	Sung Dynasty in China, 960–1279
Hindu-Arabic system of numerals, *ca.* 1000	Moslem invasions of India, 1000–1500
Saracenic world trade, *ca.* 1000–1500	
Cultivation of cotton, sugar, oranges, lemons, bananas, coffee, *ca.* 1100	Neo-Confucianism, 1130–1200
	Highest development of landscape painting in China, 1141–1279
Transmission of complete works of Aristotle to Europe, *ca.* 1150	Explosive powder used in weapons in China, *ca.* 1150

	Western Europe	Byzantine Empire
	Holy Roman (Hohenstaufen) Empire, 1152–1254	
	St. Francis of Assisi, 1182–1226	
1200—	Orders of friars, 1200–	
		Capture of Constantinople by Crusaders of Fourth Crusade, 1204
	Roger Bacon, 1214?–1294	
	Fourth Lateran Council, 1215	
	Magna Charta, 1215	
	St. Thomas Aquinas, 1225?–1274?	
	Origin of English Parliament, 1265–1295	
	Dante, 1265–1321	
1300—	Hanseatic League, 1300–1500	
	Boccaccio, 1313–1375	
	Origin of Estates-General in France, 1302	
	Hundred Years' War, 1337–1453	
	Black Death, 1347	
	Christian Renaissance, 1400–1500	
	Savonarola, 1452–1498	Capture of Constantinople by Ottoman Turks, 1453
1500—	Leonardo da Vinci, 1452–1519	
	War of the Roses in England, 1455–1485	
	Erasmus, 1466?–1536	
	Machiavelli, 1469–1527	
	Copernicus, 1473–1543	
	Michelangelo, 1475–1564	
	Tudor dynasty in England, 1485–1603	
	Unification of Spain, 1492	

portions of it as inconsistent with Christianity and barbarized much of the remainder.

The career of Jesus of Nazareth

The chief foundation of the new culture was the Christian religion, whose founder, Jesus of Nazareth, was born in a small town of Judea some time near the beginning of the Christian era. Judea was then under Roman rule, though the Jews themselves recognized only their own king, Herod I, as their rightful sovereign. The atmosphere of the country was charged with religious emotionalism and political discontent. Some of the people, notably the Pharisees, looked forward to the coming of a political messiah, a son of David, who would rescue the country from foreign rule. Others, for example the Essenes, thought in terms of spiritual deliverance through asceticism, repentance, and mystical union with God. It was this latter sect which prepared the way for the ministry of Jesus. When he was about twenty-eight years old, he was acclaimed by an Essene evangelist, John the Baptist, as one "mightier than I, whose shoes I am not worthy to bear." Thenceforth for about three years the career of Jesus, according to the New Testament accounts, was a

THE MIDDLE AGES (*Continued*)

The Saracens	India and the Far East
	Genghis Khan, 1162?–1227
	Establishment of Shogunate in Japan, 1192
	Zen Buddhism in Japan, *ca.* 1200
	Inoculation for smallpox in China, *ca.* 1200
	Turkish Sultanate at Delhi, 1206–1526
	Development of Chinese drama, *ca.* 1235
	Marco Polo in China, 1275–1292
	Mongol (Yüan) Dynasty in China, 1279–1368
	Rise of *daimyo* in Japan, 1300–1500
	Ming Dynasty, 1368–1644
Transmission of compass and astrolabe to Europe, *ca.* 1400	Sack of Delhi by Timur, 1398
	Founding of Sikh religious sect in India, *ca.* 1500
	Introduction of Christianity into Japan, 1549–1551

continuous course of preaching and teaching and of healing the sick, "casting out devils," restoring sight to the blind, and raising the dead. He not only denounced shame, greed, and licentious living but set the example himself by a life of humility and self-denial. Though the conception he held of himself is somewhat obscure, he apparently believed that he had a divine mission to save mankind from error and sin. His preaching and other activities eventually aroused the antagonism of some of the chief priests and conservative rabbis. They disliked his caustic references to the legalism of the Pharisees, his contempt for form and ceremony, and his scorn for pomp and luxury. They feared also that his claims to being the Messiah would cause trouble with the Romans. Accordingly, they brought him into the highest court in Jerusalem, where he was solemnly condemned for blasphemy and for setting himself up as "King of the Jews" and turned over to Pontius Pilate, the Roman governor, for execution of the sentence. After hours of agony he

died on the cross between two thieves on the hill of Golgotha outside Jerusalem.

The crucifixion

The crucifixion of Jesus marked a great climax in Christian history. At first his death was viewed by his followers as the end of their hopes. Their despair soon vanished, however, for rumors began to spread that the Master was alive, and that he had been seen by certain of his faithful disciples. The remainder of his followers were quickly convinced that he had risen from the dead, and that he was truly a divine being. With their courage restored, they reorganized their little band and began preaching and testifying in the name of their martyred leader. In such lowly fashion another of the world's great religions was launched on a career that would ultimately shake the foundations of no less an empire than mighty Rome.

The teachings of Jesus

There has never been perfect agreement among Christians as to the precise teachings of Jesus of Nazareth. The only dependable records are the four Gospels, but the oldest of these was not written until at least a generation after Jesus' death. According to the beliefs of his orthodox followers, the founder of Christianity revealed himself as the Christ, the divine Son of God, who was sent on this earth to suffer and die for the sins of mankind. They were convinced that after three days in the tomb, he had risen from the dead and ascended into heaven, whence he would come again to judge the world. The Gospels at least make it clear that he included the following among his basic teachings: (1) the fatherhood of God and the brotherhood of man; (2) the Golden Rule; (3) forgiveness and love of one's enemies; (4) repayment of evil with good; (5) self-denial; (6) condemnation of hypocrisy and greed; (7) opposition to ceremonialism as the essence of religion; (8) the imminent approach of the end of the world; and (9) the resurrection of the dead and the establishment of the Kingdom of Heaven.

The influence of Paul

Christianity was broadened and invested with a more elaborate theology by some of the successors of Jesus. Chief among them was the Apostle Paul, originally known as Saul of Tarsus. Although of Jewish nationality, Paul was not a native of Palestine but a Jew of the Dispersion, born in the city of Tarsus in southeastern Asia Minor. Here he came into contact with the Stoic philosophy, but he was possibly more deeply influenced by Gnosticism. Eventually converted to Christianity, he devoted his limitless energy to propagating that faith throughout the Near East. It would be almost impossible to overestimate the significance of his work. Denying that Jesus was sent merely as the redeemer of the Jews, he proclaimed Christianity to be a universal religion. But this was not all. He gave major emphasis to the idea of Jesus as the Christ, as the God-man who existed from the foundation of the world and whose death on the cross was a propitiation for the sins of mankind. Not only did he reject the works of the Law (i.e., Jewish ritualism) as of primary

importance in religion, but he declared them to be utterly worthless in procuring salvation. Man is a sinner by nature, and he can therefore be saved only by faith and by the grace of God "through the redemption that is in Christ Jesus." It follows, according to Paul, that man's fate in the life to come is almost entirely dependent upon the will of God; for "Hath not the potter power over the clay, of the same lump to make one vessel unto honour, and another unto dishonour?" He has mercy "on whom he will have mercy, and whom he will he hardeneth."

Reasons for the triumph of Christianity

By the beginning of the Middle Ages the triumph of Christianity over all its rivals was almost complete. The Emperor Galerius' edict of toleration in 311 was already an admission that the religion was too strong to be stamped out by persecution. By a series of decrees between 380 and 392 Christianity was recognized as the only lawful faith of the Roman Empire. How is this triumph to be explained? Perhaps as much as anything else it was due to the composite character of Christianity. Here was a religion which ultimately came to embody elements from a wide variety of sources. A large number of them were taken from Judaism: the name of the deity, the cosmogony, the world history, the Ten Commandments, and such doctrines as original sin and the providence of God. In addition, several of the ethical doctrines were really of Jewish origin. Although many of these elements were modified by Jesus and his followers, there can be no doubt that the Hebrew contributions to Christianity were of great importance.

Persian and Hellenistic elements

But obviously Christianity derived much from other than Jewish sources. Some idea of the debt which it owed to the various religions of Persian origin has been indicated in a preceding chapter. Zoroastrianism had already made the ancient world familiar with such concepts as otherworldliness and an eternal conflict between good and evil. Gnosticism had developed the belief in secret revelation and had taught the notion of a primal man or God-man becoming incarnate in human form. Mithraism had fixed men's attention upon forms of ritual, such as baptism and the use of holy water, and upon the celebration of Sunday and the twenty-fifth of December as sacred days. Supplementing these influences was that of the philosophy of Stoicism which had familiarized the educated classes with ideals of cosmopolitanism and the brotherhood of man. In short, mystery religions and Hellenistic philosophy had already brought into existence a large deposit of doctrines and practices upon which Christianity could draw, at the same time preserving its distinctive character. The early church was an organism that fed upon the whole pagan world, selecting and incorporating a wide variety of ideas and practices which were not inconsistent with its own nature. The appeal of Christianity was therefore more nearly universal than that of any other of the ancient religions.

The other main reasons for the triumph of Christianity may be

Other reasons for the Christian triumph

summarized briefly. It admitted women to full rights of participation in worship, whereas Mithraism, the strongest of its early competitors, excluded them. It enjoyed the advantage for about fifty years of systematic persecution by the Roman government—a factor which enormously strengthened the cohesiveness of the movement, since those who remained in the faith had to be ready to die for their convictions. While most of the other religions revolved around imaginary figures, the creatures of grotesque legends, Christianity possessed as its founder a historic individual of clearly defined personality. Lastly, the triumph of Christianity is partly explained by the fact that it made a stronger appeal to the poor and oppressed than did any of the other mystery religions. Although it included the ideal of the equality of all men in the sight of God, its founder and some of his followers had condemned the rich and exalted the lowly. It propagated a new and exceedingly democratic morality, with meekness, self-effacement, and love of one's enemies as primary virtues. Perhaps these were the qualities most likely to find ready acceptance among the helpless masses who had long since abandoned all hope of bettering their material condition....

2. *Intellectual Attainments of Medieval Europe*

The career of St. Augustine

The most erudite and perhaps the most original of all the early Christian philosophers was St. Augustine. In so far as it is possible to classify him at all, he occupied an intermediate position between Clement and Origen, on the one hand, and Tertullian and Gregory on the other. Though contending that truths of revelation were above natural reason, he perceived the need for an intellectual understanding of what he believed. Born in 354, the son of a pagan father and a Christian mother, Augustine was torn by conflicting impulses throughout the greater part of his life. As a young man he was addicted to sensual pleasures, from which he tried vainly to escape, though he admits in his *Confessions* that his efforts were none too sincere. Even after his engagement to marry he still could not resist the temptation to take a new mistress. Meanwhile, when he was about eighteen years old, he was attracted to philosophy by reading Cicero's *Hortensius*. He passed from one system of thought to another, unable to find spiritual satisfaction in any. For a brief period he considered the possibilities of Christianity, but it impressed him as too crude and superstitious. Then for nine years he was a Manichean, but ultimately he became convinced that that faith was decadent. Next he was attracted to Neo-Platonism, and then, finally, after listening to the preaching of Ambrose, he returned to Christianity. Though already in his thirty-third year when he was baptized, Augustine advanced rapidly in ecclesiastical positions. In 395 he became bishop of Hippo in northern Africa, an office which he held until his death in 430.

As a philosopher Augustine derived a great many of his theories from the Neo-Platonists. He believed in absolute and eternal truth and in instinctive knowledge which God implants in the minds of men. The supremely important knowledge, however, is knowledge of God and His plan of redemption for mankind. Though most of this knowledge must be derived from the revelation contained in the Scriptures, it is nevertheless the duty of man to understand as much of it as possible in order to strengthen his belief. On the basis of this conclusion St. Augustine developed his famous conception of human history as the unfoldment of the will of God. Everything that has happened or ever will happen represents but an episode in the fulfillment of the divine plan. The whole race of human beings comprises two great divisions: those whom God has predestined to eternal salvation constitute the City of God; all others belong to the Earthly City. The end of the drama of history will come with the Day of Judgment, when the blessed few who compose the City of God will put on the garment of immortality, while the vast multitude in the earthly kingdom will be cast into the fires of hell. This, according to St. Augustine, is the whole meaning of human existence.

The philosophy of St. Augustine

St. Augustine's theology was an integral part of his philosophy. Believing as he did in a deity who controls the operation of the universe down to the smallest detail, he naturally emphasized the omnipotence of God and set limits to the freedom of the will. Since man is sinful by nature, the will has to struggle against an inclination to commit evil. Although man has the power to choose between good and bad, it is God who provides the motive or "inspiration" for the choice. Therefore the virtuous man must thank God for having been able to choose the path of virtue. God created the world in the knowledge that some men would respond to the divine "invitation" to lead holy lives, and that others would resist or refuse to cooperate. In this way God *predestined* a portion of the human race to be saved and left the remainder to perish; or, in other words, He fixed for all time the number of inhabitants of the heavenly city. It was not that He elected some for salvation and denied to all others the opportunity to be saved. Rather, He knew infallibly from all eternity that some would not *wish* to be saved. The influence of St. Augustine was enormous. In spite of the fact that his teachings were modified slightly by the Council of Orange in 529, and still more by the theologians of the later Middle Ages, he is revered to this day as one of the most important Fathers of the Roman Catholic religion. Luther and other Protestant Reformers also held him in the highest esteem, although the interpretations they gave to his teachings frequently differed from those of the Catholics.

St. Augustine's theology

....

Thomas Aquinas, the most noted of all the Scholastic philosophers, was born in southern Italy about 1225. Following the example of the great Albert, he entered the Dominican order and devoted his life

St. Thomas Aquinas

to teaching. He was a professor at the University of Paris by the time he was twenty-five. His most famous work was his *Summary of Theology*, but he wrote on many other subjects as well, including politics and economics. The fundamental aims of St. Thomas were, first, to demonstrate the rationality of the universe, and second, to establish the primacy of reason. He believed that the universe is an ordered whole governed by intelligent purpose. All things were created in order to make possible the fulfillment of the great Christian plan for the promotion of justice and peace on earth and the salvation of mankind in a world to come. The philosophy of St. Thomas implied a serene confidence in the ability of man to know and understand his world. The great *Summaries* he wrote were attempts to build up out of logic and the wisdom of the past comprehensive systems of knowledge which would leave no mysteries unsolved. Though he leaned very heavily upon the authority of Aristotle, he regarded reason as the primary key to truth. Even his attitude toward religion was essentially intellectual rather than emotional; piety to him was a matter of knowledge much more than of faith. He admitted that a few doctrines of Christianity, such as the belief in the Trinity and the creation of the world in time, could not be proved by the intellect; but he denied that they were contrary to reason, for God Himself is a rational being. As a disciple of Aristotle, St. Thomas taught that the highest good for man is the realization of his true nature; this, he maintained, consists in the knowledge of God, which can be attained in large measure by reason in this life, but will be perfectly realized only in the hereafter. The influence of St. Thomas was not only of cardinal importance in his own time, but it survives to this day. In the late nineteenth century Pope Leo XIII exhorted the bishops of the church "to restore the golden wisdom of St. Thomas and to spread it far and wide for the defense of the faith, for the good of society, and for the advantage of all the sciences." He recommended St. Thomas as a master and guide for everyone interested in scholarly studies.

The decay of Scholasticism

By the end of the thirteenth century Scholasticism had begun to decline. Its decay was due partly to the teachings of the last of the Scholastics, John Duns Scotus. A member of the Franciscan order, Duns Scotus was inclined to emphasize the emotional and practical side of religion in place of the intellectual. He conceived of piety as an act of will rather than an act of intellect. Less confident of the powers of reason than St. Thomas, he excluded a large number of the doctrines of religion from the sphere of philosophy altogether. From this it was only a step to denial that any religious beliefs were capable of rational demonstration; all would have to be accepted on faith or rejected entirely. When this step was finally taken by Duns Scotus' successors, the overthrow of Scholasticism was speedily accomplished.

By far the best known of medieval scientists was Roger Bacon (*ca.* 1214–1294), possibly because he predicted certain modern inventions such as horseless carriages and flying machines. In reality, Bacon was much less critical than Frederick II; for he believed that all knowledge must enhance the glory of theology, the queen of the sciences. Moreover, Adelard of Bath preceded him by more than a century in advocating and using the experimental method. Nevertheless, Bacon, by virtue of his strong insistence upon accurate investigation, deserves a high place among medieval scientists. He denied that either reason or authority could furnish valid knowledge unless supported by experimental research. Besides, he himself did some practical work of great value. His writings on optics remained authoritative for several centuries. He discovered much about magnifying lenses, and it seems more than probable that he invented the simple microscope. Not only was he the best geographer of the Feudal Age, but he was also apparently the first scientist to perceive the inaccuracy of the Julian calendar and to advocate its revision.

Roger Bacon

....

The term university (from the Latin, *universitas*) originally meant a corporation or guild. In fact, many of the medieval universities were very much like craft guilds, organized for the purpose of training and licensing teachers. Gradually the word came to have the meaning of an educational institution with a school of liberal arts and one or more faculties in the professional subjects of law, medicine, and theology. No one knows which of the universities was the oldest. It may have been Salerno, which was a center of medical study as far back as the tenth century. The universities of Bologna and Paris are also very ancient, the former having been established about 1150 and the latter before the end of the twelfth century. The next oldest included such famous institutions as the universities of Oxford, Cambridge, Montpellier, Salamanca, Rome, and Naples. There were no universities in Germany until the end of the fourteenth century, when schools of this type were organized at Prague, Vienna, Heidelberg, and Cologne. By the end of the Middle Ages some eighty universities had been set up in western Europe.

The rise of the universities

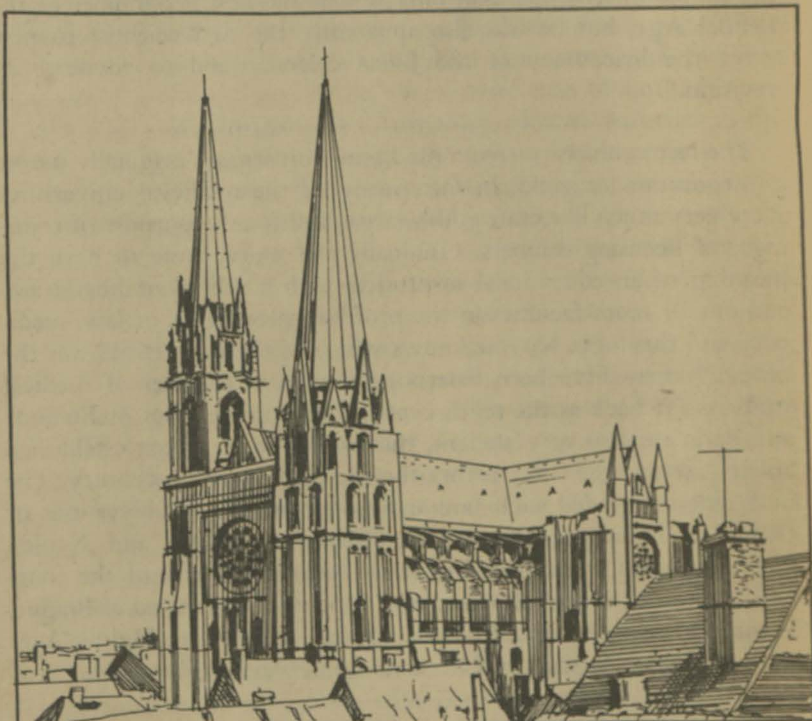
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The Feudal Age produced two great styles of architecture, the Romanesque and the Gothic. The Romanesque was mainly a product of the monastic revival and attained its full development in the century and a half following the year 1000. Fundamentally it was an ecclesiastical architecture, symbolizing the pride of the monastic orders at the height of their power. Naturally, since the Cluniac revival affected the entire church, the Romanesque style was not confined to monasteries. Nevertheless, it is significant that some of the most impressive Romanesque buildings were houses of the Cluniac order. The essential features of this building style were

Architecture: the Romanesque style

the round arch, massive walls, enormous piers, small windows, gloomy interiors, and the predominance of horizontal lines. The plainness of interiors was sometimes relieved by mosaics or by frescoing in bright colors, but the style of construction was not such as to encourage elaborate ornamentation. Moreover, the strong religious spirit in which this architecture was conceived did not foster any appeal to the senses. Churches and monasteries should be plain and dark within in order to create the proper atmosphere of piety and of otherworldliness. Some of the architects of southern Europe, however, succeeded in breaking away from this somber monastic tradition and often decorated their churches with an elaborate symbolic sculpture.

In the late twelfth and thirteenth centuries the Romanesque architecture was superseded in popularity by the Gothic. The in-



The Cathedral of Chartres, France. Regarded by some as the purest and most beautiful example of Gothic design, the Cathedral of Chartres is renowned for the grace and perfect proportions of its towers. The one on the right was built in the Thirteenth Century and reflects the simpler Gothic style of that period. The one on the left was finished in the Sixteenth Century and reveals some of the influence of flamboyant Gothic.

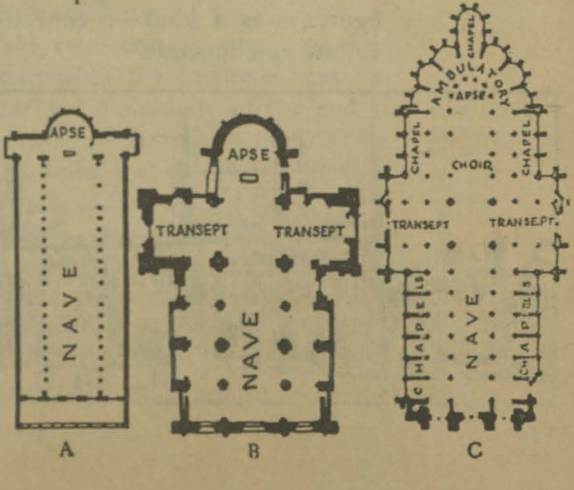
crease in wealth, the advancement of learning, the growth of secular interests, and the pride of the cities in their newly acquired free-

dom and prosperity led to a demand for a more elaborate architectural style to express the ideals of the new age. Besides, the monastic revival had now spent its force. Gothic architecture was almost exclusively urban. Its monuments were not monasteries situated on lonely crags but cathedrals, bishops' churches, located in the largest cities and towns. It must be understood, though, that the medieval cathedral was not simply a church but a center of the community life. It generally housed a school and a library and was sometimes used as a town hall. The people of the entire community participated in erecting it, and they rightfully regarded it as civic property. Indeed, many of the Gothic cathedrals were the outcome of town rivalry. For example, the people of Siena became dissatisfied with their modest church after the cathedral at Florence was completed and determined to build a new one on a much more pretentious scale. Frequently the citizens' ambitions got far out of bounds, with the result that many of the buildings were left unfinished. The architects of the cathedral of Chartres, for instance, planned for several more lofty towers than were ever completed.

The Romanesque architecture gives way to the Gothic

Gothic architecture was one of the most intricate of building styles. Its basic elements were the pointed arch, groined and ribbed vaulting, and the flying buttress. These devices made possible a much lighter and loftier construction than could ever have been achieved with the round arch and the engaged pier of the Romanesque. In fact, the Gothic cathedral could be described as a skeletal framework of stone enclosed by enormous windows. Other features included lofty spires, rose windows, delicate tracery in stone, elaborately carved façades, multiple columns, and the use of gargoyles, or representations of mythical monsters, as decorative devices. Ornamentation in the best of the cathedrals was generally concentrated on the exterior. Except for the stained glass windows and the in-

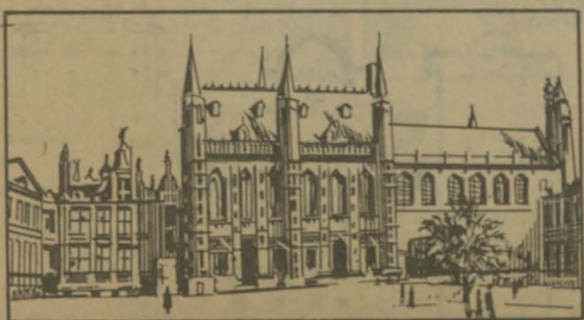
The Gothic style



Evolution of the Floor Plan of the Medieval Cathedral. *A* is the plan of the Early Christian basilica, the church of Santa Maria Maggiore in Rome, built in the Fourth Century. It is a simple plan of rectangular building with nave flanked by colonnades and side aisles. *B* is the church of San Michele at Pavia, Twelfth Century, Romanesque, with the apse elongated and transepts added, giving the church the form of a Latin cross. *C* is the cathedral at Amiens, Thirteenth Century Gothic. Here the typical Gothic plan shows up—the side aisles continue around the elongated choir and apse, forming the ambulatory, off which radiate the chapels, and the transepts are fully developed with side aisles.

tricate carving on woodwork and altars, interiors were kept rather simple and occasionally almost severe. But the inside of the Gothic cathedral was never somber or gloomy. The stained glass windows served not to exclude the light but to glorify it, to catch the rays of sunlight and suffuse them with a richness and warmth of color which nature herself could hardly produce even in her gayest moods.

The significance of Gothic architecture is frequently misunderstood. As a matter of fact, its very name, implying that the art was of barbarian origin, was originally a term of reproach given to it by the men of the Renaissance, who wanted to express their contempt for everything medieval. Many people still think of the Gothic cathedral as a product of an ascetic and otherworldly civilization. Nothing could be more inaccurate. In so far as Gothic architecture was spiritual at all, it was the symbol of a religion which had come to recognize the importance of this life. But as we have already seen, the cathedral was more than a church. It was in large part an expression of the new secular spirit which had grown out of the rise of cities and the progress of enlightenment. Many of the scenes depicted on the stained glass windows—a medieval bakeshop in operation, for instance—had no direct religious significance whatever. Moreover, Gothic architecture was in no small degree humanistic. The definite appeal to the senses revealed in the sparkling radiance of colored glass and in the naturalistic sculpture of saints and the Virgin gives positive proof that man's interest in his human self and in the world of natural beauty was no longer considered a sin. Last of all, Gothic architecture was an expression of the medieval intellectual genius. The complicated design, the perfect balance of thrust and counterthrust, and the soaring height of the buildings represented not only the triumph of reasoning skill, but also a desire to burst the confines of limited knowledge and push upward into the highest realms of truth. Each cathedral itself, with its detailed mass of carvings of plant and animal life and symbolic figures, was a kind of encyclopedia of medieval knowledge—a culture epic in stone.



Hotel de Ville, Bruges, Belgium. Begun in the Fourteenth Century, this town hall provides a good example of secular Gothic.

CHAPTER 14 The Byzantine Culture

Revision and codification of the Roman law

In the intellectual realm the Byzantine people won little distinction for originality. Comparatively few discoveries or contributions in any of the fields of knowledge can actually be credited to them. Probably their most noteworthy achievement was the revision and codification of the ancient Roman law. After the time of the great jurists (second and third centuries A.D.) the creative genius of the Roman lawyers decayed, and nothing new was added to the philosophy or the science of law. The volume of statutory enactments, however, continued to grow. By the sixth century the Roman law had come to contain numerous contradictory and obsolete provisions. Moreover, conditions had changed so radically that many of the old legal principles could no longer be applied, particularly on account of the establishment of an Oriental despotism and the adoption of Christianity as the official religion. When Justinian came to the throne in 527, he immediately decided upon a revision and codification of the existing law to bring it into harmony with the new conditions and to establish it as an authoritative basis of his rule. To carry out the actual work he appointed a commission of lawyers under the supervision of his minister, Tribonian. Within two years the commission published the first result of its labors. This was the Code, a systematic revision of all of the statutory laws which had been issued from the reign of Hadrian to the reign of Justinian. The Code was later supplemented by the Novels, which contained the legislation of Justinian and his immediate successors. By 532 the commission had completed the Digest, representing a summary of all of the writings of the great jurists. The final product of the work of revision was the Institutes, a textbook of the legal principles which were reflected in both the Digest and the Code. The combination of all four of these results of the program of revision constitutes the *Corpus Juris Civilis*, or the body of the civil law.

The Institutes and the Digest

From the historical standpoint the two most important sections of the *Corpus Juris* were unquestionably the Institutes and the Digest. It was these which contained the philosophy of law and of government which had come to prevail in Justinian's time. There is a popular but somewhat inaccurate belief that this philosophy was the same as that of Ulpian, Papinian, and the other great jurists of three hundred years before. While it is true that most of the old theory was preserved, a few fundamental changes were introduced. First, the *jus civile* was more completely denationalized than it had ever been during Roman times and was now made applicable to citizens of a great many divergent nationalities. The *jus naturale* was now declared to be divine and consequently superior to all of the

enactments of men—a conception which was destined to become exceedingly popular in later medieval philosophy. There was a tendency also for Justinian's jurists to speak of the emperor as the sole legislator, on the assumption that the people had surrendered all of their power to him. In other words, the classical Roman law was being revised to make it fit the needs of an Oriental monarch whose sovereignty was limited only by the law of God.

Other Byzantine intellectual achievements

As to the remainder of Byzantine intellectual achievements, comparatively little needs to be said. The nation produced no philosophers of more than secondary rank. But several of them made important contributions to the development of Scholasticism, which emerged as the most popular philosophy of the later Middle Ages. They emphasized the value of reason and attempted to reconcile the teachings of Aristotle with those of the Scriptures and the Christian Fathers. Byzantine literature consisted for the most part of compilations and religious writings, especially encyclopedias, commentaries, hymns, and biographies of saints. Some epic and lyric poetry was also written and numerous histories. By far the most famous of the historians was Procopius, a contemporary of Justinian. Despite his penchant for scandal-mongering in his celebrated *Secret History*, others of his works contain valuable information about the events of his time.

The record in science

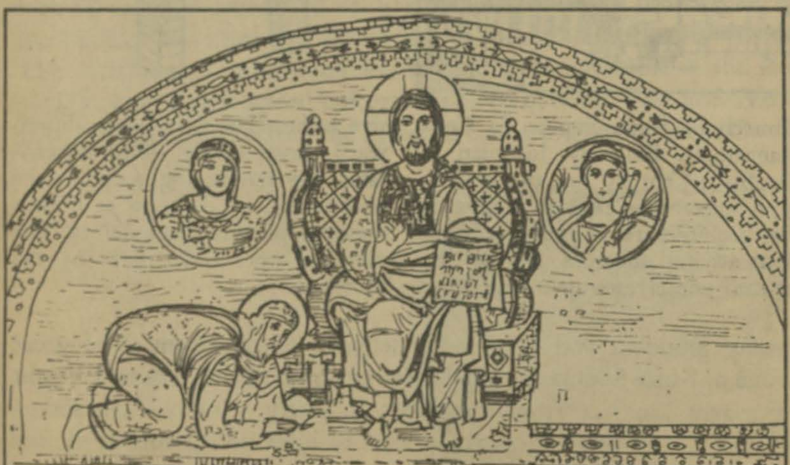
The Byzantine record in science was possibly somewhat better than in most other branches of learning. Most of the progress was made in the early years of the Empire, perhaps on account of the survival of Hellenistic influence. This first golden age was followed by a long period of stagnation until the middle of the tenth century, when a revival began due in large part to Moslem influence and to the patronage of the Emperor Constantine VII. But neither of these eras of progress lasted for more than two centuries. The leading scientists of the early period were John the Grammarian, Aetius, and Alexander of Tralles, all of whom lived in the sixth century. John the Grammarian is far more deserving of credit for his work in physics than for any contributions to grammar. He is especially worthy of attention for having been the first to challenge the traditional theories of motion and gravity. Not only did he anticipate the concept of inertia, but he rejected the notion that the speed of falling bodies is directly proportional to their weight, and he denied the impossibility of creating a vacuum. The other two scientists of the early period were encyclopedists of medicine. Although the influence of Alexander of Tralles surpassed that of Aetius, the work of the latter was more original. Aetius wrote not only the first description of diphtheria but also the best account of diseases of the eye which had been published thus far. The only outstanding scientist of the later period was Symeon Seth, who was also a physician. His chief work was a medical dictionary defining the curative properties of numerous drugs lately discovered by the Hindus and the Saracens.

The tastes of the Byzantine people, with their fondness for luxury and splendor, were signally expressed in their art. However, it was not a mere emblem of sensuous delight. It was profoundly conditioned by the peculiar ideals of the civilization itself. For one thing, the strong undercurrent of asceticism prohibited the glorification of man; as a consequence, sculpture was not permitted to develop very far. The art which held the position of pre-eminence was architecture, and it had to be mystical and otherworldly. Furthermore, since the Byzantine civilization was a compound of elements both Roman and Oriental, it was inevitable that its art should combine the love of grandeur and the engineering talent of Rome with the gorgeous coloring and richness of detail characteristic of the Orient.

Byzantine art

The supreme artistic achievement of the Byzantine civilization was the church of Santa Sophia (Holy Wisdom), built at enormous cost by the Emperor Justinian. Although designed by architects of Hellenic descent, it was vastly different from any Greek temple. Its purpose was not to express man's pride in himself or his satisfaction with this life, but to symbolize the inward and spiritual character of the Christian religion. It was for this reason that the architects gave little attention to the external appearance of the building. Nothing but plain brick covered with plaster was used for the exterior walls; no marble facings, graceful columns, or sculptured entablatures. The interior, however, was decorated with richly colored mosaics, gold leaf, colored marble columns, and bits of tinted glass set on edge to refract the rays of sunlight after the fashion of sparkling gems. It was for this reason also that the building was constructed in such a way that no light appeared to come from the outside at all but to

The church of Santa Sophia



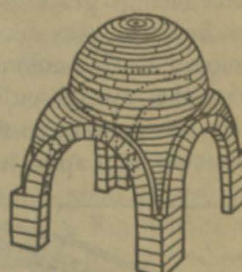
Mosaic, from the Church of Santa Sophia. The mosaic represents the Emperor Leo VI adoring the Christ seated on the throne.

be manufactured within.

Advantages of structural design

The structural design of Santa Sophia was something altogether new in the history of architecture. Its central feature was the application of the principle of the dome to a building of square shape. The church was designed, first of all, in the form of a cross, and then over the central square was to be erected a magnificent dome, which would dominate the entire structure. The main problem was how to fit the round circumference of the dome to the square area it was supposed to cover. The solution consisted in having four great arches spring from pillars at the four corners of the central square. The rim of the dome was then made to rest on the keystones of the arches, with the curved triangular spaces between the arches filled in with masonry. The result was an architectural framework of marvelous strength, which at the same time made possible a style of im-





Church of Santa Sophia, in Constantinople. Built by Justinian in the Sixth Century A.D., this church is an outstanding example of Byzantine architectural design. As the accompanying diagram shows, the central dome rests upon four massive arches. The tremendous downward thrust of the dome necessitates the buttressing seen in the photograph in the two enormous masonry piles and half domes. The minarets were added later by the Moslems.

posing grandeur and even some delicacy of treatment. The great dome of Santa Sophia has a diameter of 107 feet and rises to a height of nearly 180 feet from the floor. So many windows are placed around its rim that the dome appears to have no support at all but to be suspended in mid-air.

Other Byzantine arts

The other arts of Byzantium included ivory-carving, the making of embossed glassware and brocaded textiles, the illumination of manuscripts, the goldsmith's and jeweler's arts, and considerable painting. The last, however, was not so highly developed as some of

the others. In place of painting the Byzantine artist generally preferred mosaics. These were designs produced by fitting together small pieces of colored glass or stone to form a geometric pattern, symbolical figures of plants and animals, or even an elaborate scene of theological significance. Representations of saints and of the Christ were commonly distorted to create the impression of extreme piety.

The Byzantine influence in eastern Europe

The importance of the Byzantine civilization is usually underestimated. It was undoubtedly the most powerful factor in determining the course of development of eastern Europe. To a very large extent the civilization of imperial Russia was founded upon the institutions and achievements of Byzantium. The Russian church was an offshoot of the so-called Greek Orthodox or Eastern church, which broke away from Rome in 1054. The Tsar as the head of the religion as well as the state occupied a position analogous to that of the emperor at Constantinople. The architecture of the Russians, their calendar, and a large part of their alphabet were also of Byzantine origin. Perhaps even the despotism of the Soviet regime can be traced in some measure to the long-standing tradition of absolute rule in Russia which ultimately goes back to Byzantine influence.

The Byzantine influence in the West

But the influence of the Byzantine civilization was not limited to eastern Europe. It would be hard to overestimate the debt of the West to scholars in Constantinople and the surrounding territory who copied and preserved manuscripts, prepared anthologies of Greek literature, and wrote encyclopedias embodying the learning of the ancient world. Moreover, Byzantine scholars exerted a notable influence upon the Italian Renaissance. In spite of the fact that the Eastern emperors eventually lost control of Italy, many of their former subjects continued to live there, and some others fled to the Italian cities after the overthrow of the Iconoclastic movement. The extensive trade between Venice and Constantinople in the late Middle Ages also fostered cultural relations between East and West. Consequently, long before the fifteenth century when eminent Greek



Interior of the Church of Sant' Apollinare, Ravenna. Built in the Fifth and Sixth Centuries, this church is a well preserved example of Byzantine influence.

THE TRANSITION FROM

	Politics	Arts and Letters
1300–		Development of the novel in China, 1300–
		Boccaccio, 1313–1375
1400–		
	War of the Roses in England, 1455–1485	Leonardo da Vinci, 1452–1519
	Tudor Dynasty in England, 1485–1603 Unification of Spain, 1492	Michelangelo, 1475–1564 Rabelais, *ca.* 1490–1553
1500–		
	Revolt of the knights in Germany, 1522–1523 Peasants' Revolt in Germany, 1524–1525 Mogul Dynasty in India, 1526–1857	Montaigne, 1533–1592
		Cervantes, 1547–1616
1550–		
	Akbar the Great Mogul, 1556–1605	
	Revolt of the Netherlands, 1565–1609	Shakespeare, 1564–1616 Rubens, 1577–1640
	Beginning of international law: Hugo Grotius, 1583–1645 Spanish Armada, 1588 Bourbon Dynasty in France, 1589–1792	
1600–		Velasquez, 1599–1660
	Tokugawa Shogunate (Japan), 1603–1867	Baroque architecture, 1600–1750
	Thirty Years' War, 1618–1648 Beginning of isolation policy in Japan, 1637 Beginning of modern state system in Europe, 1648	Rembrandt, 1606–1669 Taj Mahal, 1632–1647 Development of *Kabuki* drama in Japan, 1650

MEDIEVAL TO MODERN

Philosophy and Science	Religion	Economics
		Rise of capitalism, 1300–1500
	Babylonian Captivity of Papacy, 1309–1379	Growth of banking and development of money economy, 1300–1600
	The Great Schism, 1379–1417	The domestic system, 1400–1750
	Christian Renaissance, 1400–1500	The enclosure movement, 1400–
	Savonarola, 1452–1498	Voyages of discovery and exploration, 1450–1600
Machiavelli, 1469–1527		
Erasmus, 1466?–1536		
Copernicus, 1473–1543	Martin Luther, 1483–1546	
	Catholic Reformation, 1500–1563	
	John Calvin, 1509–1564	
	Beginning of Protestant Revolution, 1517	
	Zwinglian movement in Switzerland, 1519–1529	
	Rise of Anabaptists, *ca.* 1520	
	Founding of Society of Jesus, 1534	
	Henry VIII establishes Anglican Church, 1534	
	Council of Trent, 1545–1563	
	Jesuit missionaries active in China, 1550–	
Sir Francis Bacon, 1561–1626	Religious toleration in India, 1556–1632	
Galileo, 1564–1642	Elizabethan compromise, 1570	
Sir William Harvey, 1578–1657		
	Edict of Nantes, 1598	
		Cameralism, 1600–1800
Growth of Confucian scholarship in Japan, 1603–		Joint stock companies, 1600–
		Mercantilism, 1600–1789
	Expulsion of Christians from Japan, 1637	British trading posts in India, 1641

scholars arrived in Italy, a foundation for the revival of interest in the Greek classics had already been laid. Likewise, Byzantine art exerted its effect upon the art of western Europe. Some authorities regard the stained glass windows of the Gothic cathedrals as an adaptation of the mosaics in Eastern churches. Several of the most famous churches in Italy, for example St. Mark's in Venice, were built in close imitation of the Byzantine style. Byzantine painting also influenced the painting of the Renaissance, especially of the Venetian school and of El Greco. Finally, it was the *Corpus Juris* of Justinian which really made possible the transmission of the Roman law to the late Middle Ages and to the modern world.

CHAPTER 15 The Civilization of the Renaissance

The transition from the Feudal Age to the Renaissance

Soon after 1300 the majority of the characteristic institutions and ideals of the Feudal Age had begun to decay. Chivalry, feudalism itself, the Holy Roman Empire, the universal authority of the papacy, the guild system of trade and industry were all gradually being weakened and would eventually disappear. The great age of the Gothic cathedrals was practically over, the Scholastic philosophy was beginning to be ridiculed and despised, and the supremacy of the religious and ethical interpretations of life was being slowly but effectively undermined. In place of all these there gradually emerged new institutions and ways of thinking of sufficient importance to stamp the centuries that followed with the character of a different civilization. The traditional name applied to this civilization, which extended from 1300 to approximately 1650, is the Renaissance.

Meaning of the term Renaissance

The term Renaissance leaves much to be desired from the standpoint of historical accuracy. Literally it means rebirth, and it is commonly taken to imply that in the fourteenth century there was a sudden revival of interest in the classical learning of Greece and Rome. But this implication is far from being strictly true. Interest in the classics was by no means rare in the Feudal Age. Such writers as John of Salisbury, Dante, and the Goliard poets were just as enthusiastic admirers of Greek and Latin literature as any who lived in the fourteenth century. Indeed, the so-called Renaissance was in considerable measure simply the culmination of a series of revivals which began as far back as the ninth century. All of these movements were characterized by a reverence for the ancient authors. Even in the cathedral and monastic schools Cicero, Vergil, Seneca, and, later on, Aristotle frequently received as much worshipful adoration as was given to any of the saints.

The Renaissance was a great deal more than a mere revival of

pagan learning. It embraced, first of all, an impressive record of new achievements in art, literature, science, philosophy, politics, education, and religion. While the foundation of many of these was classical, they soon expanded beyond the measure of Greek and Roman influence. Indeed, most of the achievements in painting, science, politics, and religion bore little relation to the classical heritage. Secondly, the Renaissance incorporated a number of dominant ideals and attitudes which are commonly assumed to have set the standard for the modern world. Conspicuous among them were optimism, worldliness, hedonism, naturalism, and individualism; but the most significant of them all was humanism. In its broadest sense humanism may be defined as the glorification of the human and the natural as opposed to the divine or otherworldly. Conceived in this fashion, it was the heart and soul of the Renaissance; for it included practically all of the other ideals already mentioned. Humanism also has the more restricted meaning of enthusiasm for the classical writings because of their human interest. This is the sense in which it was frequently used by the men of the early Renaissance.

The Renaissance more than a revival of pagan learning

Not only was the Renaissance much more than a revival of pagan learning; in some ways it was closely related to the spirit of the late Middle Ages. The pride in human achievement reflected in Gothic architecture, the naturalism of the *fabliaux* and of *Aucassin and Nicolette*, the secularism of the orders of friars, and the striving after knowledge and understanding in the universities all clearly foreshadowed the prevailing ideals of the fourteenth and succeeding centuries. On the other hand, it is hardly correct to think of the Renaissance as only a final chapter in medieval civilization. Many of the new attitudes and achievements were distinctly at variance with the medieval world perspective. No longer did men conceive of the universe as a finite system of concentric spheres revolving around the earth and existing for the glory and salvation of man. The revival of the heliocentric theory as early as the fifteenth century suggested a cosmos of infinitely greater extent, with the earth only one of a number of worlds. The goal of human knowledge was thus pushed much farther into the distance, since the universe according to the new conception could not be so easily reduced to a simple explanation in terms of the Christian epic.

Comparison and contrast with the Middle Ages

In other ways also the civilization of the Renaissance contrasted sharply with the Middle Ages. Chivalry was now quite generally treated with contempt. The Scholastic philosophy was despised as a stupid mixture of logic and religious dogma. The medieval condemnation of business for the sake of profit no longer received even lip service from the grasping merchants and bankers in every European city. The collectivism of the Middle Ages—the submergence of the individual in the guild, in the church, and in the social order to which he belonged—now gave way to a rabid egoism which glorified almost every form of self-assertiveness and elevated pride

Individualism and state sovereignty

from a deadly sin to a cardinal virtue. Perhaps the most striking contrasts were those to be found in the realm of politics. The medieval ideal of a universal commonwealth under the sovereign authority of the Holy Roman Emperor or the Pope had no meaning at all for the political philosophers of the Renaissance. Instead, they maintained that every individual state regardless of its size should be absolutely free from external control. Unfortunately they also rejected the medieval doctrines of limited government and the ethical basis of politics. It was now commonly held that the authority of the ruler was subject to no limitations whatever, and some even asserted that the prince in the exercise of his official functions was not bound by the canons of morality; whatever was necessary to maintain his own power or the power of the state over which he ruled provided its own justification. Scarcely any philosopher in the Middle Ages would have tolerated such doctrines.

The real causes of the Renaissance

1. *The Causes of the Renaissance*

Most of the causes of the Renaissance have already been indicated. In general they were the very same factors that had stimulated the intellectual and artistic revival of the twelfth and thirteenth centuries: (1) the influence of the Saracenic and Byzantine civilizations; (2) the development of a flourishing commerce; (3) the growth of cities; (4) the revival of an interest in classical studies in the cathedral and monastic schools; (5) the growth of a critical and skeptical attitude exemplified in the philosophies of such men as Abelard; and (6) the gradual escape from the otherworldly and ascetic atmosphere of the early Middle Ages. To these should be added certain other causes which were really elements in the medieval renaissance of the twelfth and thirteenth centuries: first, the revival of the study of the Roman law, with the impetus it gave to the growth of secular interests; second, the expansion of intellectual interests made possible by the rise of the universities; third, the Aristotelianism of the Scholastic philosophy, with its appeal to the authority of a pagan thinker; fourth, the growth of naturalism in literature and art; and fifth, the development of a spirit of scientific inquiry, exemplified in the work of Adelard of Bath, Roger Bacon, and Frederick II. Soon after the Renaissance got under way, its progress was greatly accelerated by the influence of secular and ecclesiastical patrons of learning. Outstanding among the former were the Medici family in Florence, the Sforza family in Milan, the Este lords of Ferrara, and Alfonso the Magnanimous of Naples. Most of these patrons were wealthy merchants who had become despots of the city republics in which they lived. The ecclesiastical patrons included such Popes as Nicholas V, Pius II, Julius II, and Leo X. The attitude of these men was singularly at variance with what is normally expected of occupants of the fisherman's throne. They displayed no interest in theology or in the

Patronage of learning

conversion of the ungodly. They kept on the payroll of the church men who openly attacked fundamental Christian doctrines. Nicholas V, for example, employed as a papal secretary the celebrated Lorenzo Valla, who exposed an important document of the church as a forgery and preached a philosophy of carnal pleasure. Whatever the incongruity of their attitude, the work of these Popes was of inestimable value to cultural progress, for they bestowed their patronage upon some of the most brilliant artists and literary men of the Italian Renaissance.

Alleged causes of the Renaissance: (1) the Crusades

Before leaving this subject of factors responsible for the Renaissance, it will be desirable to dispose of two alleged causes commonly believed to have been of decisive importance. One of these is the Crusades, and the other is the invention of printing. In a preceding chapter we observed that the intellectual influence of the Crusades was slight. The introduction of Moslem learning into Europe came about as a result of the work of scholars in the libraries of Toledo and Cordova and as a consequence of the deliberate attempts of Frederick II to undermine the power of the church by diffusing a pagan culture throughout his domains. Only to the extent that the Crusades weakened feudalism, diminished the prestige of the papacy, and helped to give the Italian cities a monopoly of Mediterranean trade may they be considered as in any way responsible for the beginning of Renaissance civilization. And even these results can be ascribed in large part to other factors.

(2) the invention of printing by movable type

While the invention of printing was an achievement of the utmost importance, it was perhaps even less than the Crusades a direct cause of the Renaissance. For one thing, it came too late. So far as the evidence shows, no printing press was in operation much before the middle of the fifteenth century. The earliest work known to have been printed from movable type actually dates from 1454. By this time the Renaissance in Italy was already well under way, having started about a century and a half before. Furthermore, many of the early humanists were decidedly hostile toward the new invention. They regarded it as a barbarous German contraption and refused to allow their works to be printed lest they obtain too wide a circulation and be misunderstood by the common people. The fact should also be noted that the earliest publishing firms were far more interested in turning out religious books and popular stories than in printing the writings of the new learning. Devotional tracts, service books for the church, writings of the theologians, and collections of ancient legends were the types of reading matter which really appealed to the public of that day, and were accordingly more profitable to the printers than any of the recondite works of the humanists. The conclusion seems amply justified that the influence of the invention of printing upon the Renaissance extended no farther than to aid slightly in spreading and accelerating the movement in its later stages, particularly in northern Europe.

Most of the great benefits of the invention came after the Renaissance had ended.

2. The Renaissance in Italy

Petrarch, the father of Italian Renaissance literature

I. THE LITERARY AND ARTISTIC CULTURE No wide gulf separated Italian Renaissance literature from the literature of the late Middle Ages. The vast majority of the literary achievements between 1300 and 1550 were already foreshadowed in one or another of the different trends initiated in the twelfth and thirteenth centuries. The so-called father of Italian Renaissance literature, Francesco Petrarca or Petrarch (1304–1374), was himself very close to the medieval temper. He employed the same Tuscan dialect which Dante had chosen as the basis of an Italian literary language. Moreover, he believed quite firmly in Christianity as the way of salvation for man, and he was addicted at times to a monkish asceticism. His best-known writings, the sonnets he addressed to his beloved Laura, partook of the same flavor as the chivalrous love poetry of the thirteenth-century troubadours. Although Petrarch has been widely acclaimed as the father of humanism, the humanism he founded differed but slightly from that of many a medieval poet. About all that was new in Petrarch was his intense absorption in his own personality and his passionate devotion to the Greek as well as to the Latin classics. Even here the novelty was primarily a matter of degree. It is not quite accurate to think of Petrarch as "the first modern man."

The more robust humanism of Boccaccio

The second of the great figures in the Italian literary Renaissance, Giovanni Boccaccio (1313–1375), was scarcely much more of an original genius. Like Petrarch, Boccaccio was a Florentine, the illegitimate son of a prosperous merchant. His father having planned for him a business career, he was sent to Naples to serve an apprenticeship in a branch of the great Florentine banking house of the Bardi. But the young Boccaccio soon displayed more ardor in worshiping in the temple of the Muses than in computing the interest on loans. It was perhaps natural that this should be so, for Naples was a center of gracious living under languorous skies and of strong poetic traditions emanating from the lands of the Saracens and the troubadours. It was an environment especially fitted to stimulate the poetic fancies of youth. Boccaccio was also inspired by a passionate love for the beautiful wife of a Neapolitan citizen. Nearly all of his earlier works were poems and romances dealing with the triumphs and tortures of this love. Gradually his skill in the story-telling art attained perfection, and he eventually found prose a more suitable medium for his purposes. His first work of merit in the new style was *Fiammetta*, a forerunner of the psychological novel. But by far the most notable of Boccaccio's writings was his *Decameron*, which he wrote after his return to Florence about 1348.

The Decameron

The *Decameron* consists of one hundred stories which the author puts into the mouths of seven young women and three young men. The stories do not form a novel revolving about a continuous theme but are united by the artificial plot of having been told by a group of people who are concerned merely with passing the time during their sojourn at a villa outside of Florence to escape the ravages of the Black Death. Though some of the tales were probably invented by Boccaccio, most of them were drawn from the *fabliaux*, from the *Book of the 1001 Nights*, and from other medieval sources. In general they differ from their medieval prototypes in being slightly more ribald, egoistic, and anti-clerical and more deeply concerned with a frank justification of the carnal life; but the *Decameron* certainly does not represent, as many people think, the first emphatic protest against the ascetic and impersonal ideals of the early Middle Ages. Its real significance lies in the fact that it set the pattern for Italian prose and exerted considerable influence upon Renaissance writers in other countries.

The character of literature in the Quattrocento

The death of Boccaccio in 1375 marks the end of the first period in the Italian Renaissance in literature, a period which is often called the Trecento.[1] The age which followed, known as the Quattrocento, was distinguished by a revival of the Latin language. Enthusiasm for the classics had now attained such force that men could not bear to write in any other language than that of the great masters of ancient Rome. The Italian of Dante and Boccaccio was scorned as the uncouth tongue of butchers and bakers. Naturally such an attitude did not foster the development of the highest talent, for it tended to set as the supreme goal of literary effort the faithful imitation of Latin models. It is therefore not strange that the majority of the writers of this time—such men as Poggio, Beccadelli, Filelfo, and Pontano—should be remembered merely as second-rate figures whose chief claim to distinction is their militant paganism and their delight in erotic themes. Their work represents one of the farthest extremes to which the reaction against Christian belief and morality was destined to go. The Quattrocento was also the period when the passion for Greek studies was at its zenith. Prior to this time the Italian humanists had achieved but indifferent success in their attempts to learn the Greek language and to discover the treasures of Hellenic culture. But in 1393 a famous scholar of Constantinople, Manuel Chrysaloras, arrived in Venice on a mission from the Byzantine emperor to implore the aid of the West in a war against the Turks. Almost immediately acclaimed by the Italians as an apostle of the glorious Hellenic past, he was eventually persuaded to accept a professorship of the Greek classics at the

[1] So called from the Italian word for three hundred, *trecento*, used to designate the century which followed 1300. Quattrocento, from the word for four hundred, is applied to the period of the fifteenth century and Cinquecento to the sixteenth.

University of Florence. About the beginning of the fifteenth century several other Byzantine scholars, notably Platonist philosophers, migrated to Italy. The influence of these men in providing information about the achievements of the ancient Greeks seems to have been considerable. At any rate, it was not long until Italian scholars began to make trips to Constantinople and other Byzantine cities in search of manuscripts. Between 1413 and 1423 a certain Giovanni Aurispa, for example, brought back nearly two hundred and fifty manuscript books, including works of Sophocles, Euripides, and Thucydides. It was in this way that many of the Hellenic classics, particularly the writings of the dramatists, historians, and earlier philosophers, were first made available to the modern world.

The Cinquecento

The last great age in the development of Italian Renaissance literature was the Cinquecento, or the period from 1500 to about 1550. Italian was now raised to a full equality with Greek and Latin, classical and modern influences were more perfectly blended, and a deeper originality of both form and content was achieved. But the literary capital of the Renaissance was no longer Florence. In 1494 that city came under the rule of the fanatical reformer Savonarola; and, while the Medici were restored to power about eighteen years later, the brilliant Tuscan metropolis soon afterward fell a victim of factional disputes and foreign invasion. During the first half of the sixteenth century the city of Rome gradually rose to a position of cultural leadership, mainly because of the patronage of the church, especially during the reign of Pope Leo X (Giovanni de' Medici). This gorgeous prelate was the son of Lorenzo the Magnificent. When he was only fourteen years old, his father's influence had been sufficient to procure his appointment as a cardinal. Elevated to St. Peter's throne in 1513, he is reported to have said, "Let us enjoy the papacy since God has given it to us." There can be little doubt that he did enjoy it, for he was a magnificent spendthrift, lavishing rewards upon artists and writers and financing the construction of beautiful churches.

The epic and the pastoral romance

The chief forms of literature developed in the Cinquecento were epic and pastoral poetry, drama, and history. The most eminent of the writers of epics was Ludovico Ariosto (1474–1533), author of a lengthy poem entitled *Orlando Furioso*. Although woven largely of materials taken from the romances of adventure and the legends of the Arthurian cycle, this work differed radically from any of the medieval epics. It incorporated much that was derived from classical sources; it lacked the impersonal quality of the medieval romances; and it was totally devoid of idealism. Ariosto wrote to make men laugh and to charm them with felicitous descriptions of the quiet splendor of nature and the passionate beauty of love. His work represents the disillusionment of the late Rennaissance, the loss of hope and of faith, and the tendency to seek consolation in the pursuit of aesthetic pleasure. The development of pastoral poetry

at this time probably reflects a similar attitude of disenchantment and loss of confidence. As the name implies, the pastoral romance glorifies the simple life amid rustic surroundings and expresses the yearning for a golden age of unspoiled pleasures and freedom from the worries and frustrations of artificial urban society. The chief author of this type of literature in the Italian Renaissance was Jacopo Sannazaro (1458–1530), who gave to his main work the title of *Arcadia*.

Drama

In the field of the drama the Italians never achieved more than moderate success. Their failure as writers of tragedy was particularly noticeable, despite the fact that they had considerable knowledge of classical models from which to profit. The Italian was apparently too much of an individualist to be influenced profoundly by the Greek conception of a tragic conflict between man and society and too much of an optimist to brood over personal suffering. His mind was fixed upon the compensations of life rather than upon its grim and terrifying aspects. His real talents lay in naturalistic description, in the development of light and joyous themes, and in the expression of personal egotism. It was natural, therefore, that the best of his dramas should have been comedies, especially satirical comedies, rather than tragedies. The first and the greatest of the Italian comedians was a man who is far better known as a political philosopher—Niccolo Machiavelli (1469–1527). The finest product of his dramatic skill was a work entitled *Mandragola*, which has been called "the ripest and most powerful play in the Italian language." Sparkling with salacious wit and based upon incidents typical of life in the author's native city of Florence, it is a lurid satire of Renaissance society. In this as in his other writings Machiavelli reveals his cynical views of human nature. He appears to believe that all human beings are knaves and fools at heart, with their meanness and stupidity only partly concealed by a thin veneer of refinement and learning.

History

The historians of the High Renaissance in Italy displayed a critical spirit and a degree of objectivity which had not been seen since the end of the ancient world. First among them in order of time although not in order of greatness was Machiavelli. In his main historical work, an account of the evolution of the Florentine republic to the death of Lorenzo de' Medici, he rigidly excluded all theological interpretations and sought to discover the natural laws which govern the life of a people. More scientific in his methods of analysis was Machiavelli's younger contemporary, Francesco Guicciardini (1483–1540). Having served many years as an ambassador of Florence and as a governor of papal territories, Guicciardini enjoyed a unique advantage in acquiring familiarity with the cynical and tortuous political life of his day. His special gifts as a historian were a capacity for minute and realistic analysis and an uncanny ability in disclosing the springs of human action. His

masterpiece was his *History of Italy*, a detailed and dispassionate account of the varying fortunes of that country from 1492 to 1534. No study of Renaissance historians would be complete without some mention of Lorenzo Valla (1406–1457), who may properly be regarded as the father of historical criticism. By careful scrutiny of their literary style he challenged the authenticity of a number of accepted documents. He proved the famous "Donation of Constantine" to be a forgery, thereby demolishing one of the principal bases of papal supremacy, since this document purported to have been a grant by the Emperor Constantine of the highest spiritual and temporal power in the West to the Pope. In addition, Valla denied that the so-called Apostles' Creed had ever been written by the Apostles, and he pointed out numerous corruptions in the Vulgate edition of the New Testament as compared with the earlier Greek texts. His critical methods served later on to stimulate a much broader attack by the northern humanists upon the doctrines and practices of the organized church.

Italian painting in the Trecento: Giotto the naturalist

Despite the wealth of brilliant accomplishments in literature, the proudest achievements of the Italian Renaissance were made in the realm of art. Of all the arts, painting was undoubtedly supreme. The evolution of Italian painting followed a course of development which roughly paralleled the history of literature. During the initial period of the Trecento, however, there was only one artist of distinction worthy to be compared to Petrarch and Boccaccio in literature. His name was Giotto (1276–1336). With him, painting definitely took on the status of an independent art, although his master Cimabue had already made some beginnings in this direction. Giotto was pre-eminently a naturalist. So skillful was he in depicting the semblance of life that, according to the story, one of his drawings of a fly so completely deceived Cimabue that he attempted to brush the creature away with his hand. Giotto also displayed more than ordinary talent in the portrayal of action, especially in such frescoes as *Saint Francis Preaching to the Birds*, *The Massacre of the Innocents*, and his scenes from the life of Christ.

Painting in the Quattrocento

It was not till the Quattrocento, however, that Italian Renaissance painting really attained its majority. By this time the increase in wealth and the partial triumph of the secular spirit had freed the domain of art to a large extent from the service of religion. The church was no longer the only patron of artists. While subject matter from Biblical history was still commonly employed, it was frequently infused with nonreligious themes. The painting of portraits for the purpose of revealing the hidden mysteries of the soul now became popular. Paintings intended to appeal primarily to the intellect were paralleled by others whose only purpose was to delight the eye with gorgeous color and beauty of form. The Quattrocento was characterized also by the introduction of painting in oil, probably from Flanders. The use of the new technique doubtless

had much to do with the artistic advance of this period. Since oil does not dry so quickly as water, the painter could now work more leisurely, taking his time with the more difficult parts of the picture and making corrections if necessary as he went along.

The majority of the painters of the Quattrocento were Florentines. First among them was a precocious youth by the name of



Masaccio, *The Expulsion of Adam and Eve from the Garden of Eden.* As the first of the realists, Masaccio departed from the tradition of Giotto and introduced emotion and psychological study into his paintings. In the Church of Santa Maria del Carmine, Florence.

The Florentine painters: Masaccio

Masaccio. Although he died at the age of twenty-seven, Masaccio inspired the work of Italian painters for a hundred years. He is commonly considered the first of the realists in Renaissance art. Besides, he introduced an element of universality into his work which profoundly influenced many of his successors. The greatest of his paintings, *The Expulsion of Adam and Eve from the Garden* and *The Tribute Money*, dealt not with specific themes but with the simple emotions common to mankind in all ages. Masaccio was also the first to achieve any notable success in imparting unity of action to groups of figures and in giving the effect of thickness to objects by the use of light and shade.

The best known of the painters who followed directly the paths marked out by Masaccio were Fra Lippo Lippi and Botticelli. As his name indicates, Fra Lippo Lippi was a member of a religious brotherhood. But that did not prevent him from giving his paint-

ings an intensely human appeal. For his portraits of saints and madonnas he chose as models the ordinary men and women of the city of Florence. He was accustomed to depict the Christ child as a lusty infant whom one might expect to pull his mother's hair or fly into an unspiritual tantrum at any minute. Probably his chief contribution to painting was a tradition of psychological analysis. He seems to have been the first to have made the face the mirror of the soul. His most famous pupil, Sandro Botticelli (1447–1510), carried the method of psychological treatment even farther. In spite of his sensitive feeling for nature which led him to paint with such delicate skill the subtle loveliness of youth, the summer sky, and the tender bloom of spring, Botticelli was really more deeply interested in the spiritual beauty of the soul. Like others of his time, he was strongly influenced by Neo-Platonism and dreamed of the reconciliation of pagan and Christian thought. As a consequence many of the countenances he painted reveal a pensive sadness, a mystic yearning for the divine. But by no means all of his work had a religious import. His *Allegory of Spring* and *Birth of Venus* are based entirely upon classical mythology and suggest little more than an absorbing pleasure in the unfolding of life and a romantic longing for the glories of ancient Greece and Rome.

Fra Lippo Lippi and Botticelli

Perhaps the greatest of the Florentine painters was Leonardo da Vinci (1452–1519), one of the most talented and versatile geniuses who ever lived. Not only was he a gifted painter but a sculptor, musician, and architect of outstanding ability and a brilliant mathematician, scientist, and philosopher. The son of an illicit union of a prominent lawyer and a woman of humble station, he was placed by his father at an early age under the instruction of Verrocchio, a sculptor and painter of some renown and the most celebrated teacher of art in Florence. By the time he was twenty-five Leonardo was already sufficiently distinguished as a painter to win the favor of Lorenzo the Magnificent. But after five or six years he appears to have become dissatisfied with the intellectual and artistic views of the Medici and gladly accepted an offer of regular employment at the court of the Sforza in Milan. It was under the patronage of the Sforza that he produced some of the finest achievements of his whole career. His work, covering the late years of the fifteenth century and the first two decades of the sixteenth, marks the beginning of the so-called High Renaissance in Italy.

Leonardo da Vinci

As a painter Leonardo da Vinci was impatient with the established tradition of striving to imitate classical models. He believed that all art should have as its basis a scientific study of nature. But he had no intention of confining his interests to the mere surface appearances of things. He was convinced that the secrets of nature are deeply hidden, and that the artist must examine the structure of a plant or probe into the emotions of a human soul as painstakingly as the anatomist would dissect a body. He appears especially to have

Leonardo's artistic approach

been fascinated by the grotesque and unusual in nature. Yawning fissures in the earth, jagged pinnacles of rocks, rare plants and animals, embryos, and fossils—these were the phenomena he loved to ponder, evidently in the belief that this mysterious universe yields more of its secrets in the fantastic and unaccustomed than in the things that are commonplace and obvious. For the same reason he devoted much time to the study of exceptional human types, often wandering the streets for hours in quest of some face which would reveal the beauty and terror, the sincerity and hypocrisy, of the personality behind it. As a result of this deliberate selection of subjects, the paintings of Leonardo have a quality of realism decidedly at variance with the ordinary type. He did not generally portray the aspects of nature as they appear to the casual observer but strove to present them as symbols of his own philosophic reflections. He was one of the most profoundly intellectual of painters.

Leonardo's famous paintings

It is generally agreed that Leonardo da Vinci's masterpieces are his *Virgin of the Rocks*, his *Last Supper*, and his *Mona Lisa*. The first represents not only his marvelous technical skill but also his passion for science and his belief in the universe as a well-ordered place. The figures are arranged in geometric composition with every rock and plant depicted in accurate detail. The *Last Supper*, painted on the walls of the rectory of Santa Maria delle Grazie in Milan, is a study of psychological reactions. A serene Christ, resigned to his terrible fate, has just announced to his disciples that one of them will betray him. The purpose of the artist is to portray the mingled emotions of surprise, horror, and guilt revealed in the faces of the disciples as they gradually perceive the meaning of their master's statement. The third of Leonardo's major triumphs, the *Mona Lisa*, reflects a similar interest in the varied moods of the human soul. Though it is true that the *Mona Lisa* is a portrait of an actual woman, the wife of a Neapolitan by the name of Francesco del Giocondo, it is much more than a mere photographic likeness. A distinguished art critic and philosopher of the nineteenth century has called it a portrait of universal woman—"a perpetual life sweeping together ten thousand experiences." In other words, the famous *Mona Lisa* countenance is not so much that of an individual woman as of feminine humanity. In it are brought together all the thoughts and feelings, the triumphs and defeats, the sympathy and the brutality of womankind through uncounted centuries.[1] The *Mona Lisa* is distinctive also as the supreme embodiment of the artist's skill in depicting the play of light and shade. In place of the old technique of showing a gradual transition from light to dark, Leonardo introduced a new method of punctuating darker areas with little spots of light, and vice versa. The effect was to surround the faces in many of his paintings with a gentle haze, accentuating their tender and pensive look. For him the interplay of light and shadow was

[1] Walter Pater, *The Renaissance* (Modern Library edition), pp. 103–4.

an even more significant manifestation of nature than color and outline. His emphasis upon this phenomenon had the result of illuminating some of the figures in the background of his paintings and of giving a suggestion of dark mystery to others.

The Venetian painters

The late Quattrocento, or the beginning of the High Renaissance, was marked by the rise of another celebrated school of Italian painting, the so-called Venetian school. Its chief representatives included Titian (1477–1576), Giorgione (1478–1510), and Tintoretto (1518–1594). Of the three, Titian was perhaps the greatest. The work of all these men reflected the luxurious life and the pleasure-loving interests of the thriving commercial city of Venice. The Venetian painters had none of the preoccupation with philosophical and psychological themes which had characterized the Florentine school. Their aim was to appeal to the senses rather than to the mind. They delighted in painting idyllic landscapes and gorgeous symphonies of color. For their subject matter they chose not merely the opulent beauty of Venetian sunsets and the shimmering silver of lagoons in the moonlight but also the man-made splendor of sparkling jewels, richly colored satins and velvets, and gorgeous palaces. In this subordination of form and meaning to color and elegance there were mirrored not only the sumptuous tastes of a wealthy bourgeoisie but also definite traces of Oriental influence which had filtered through from Byzantium during the late Middle Ages.

The painters of the late Renaissance: Raphael

The remaining great painters of the High Renaissance all lived their active careers in the Cinquecento. It was in this period that the evolution of art reached its peak, and the first signs of decay began to appear. Rome was now almost the only artistic center of importance on the mainland of the Italian peninsula, although the traditions of the Florentine school still exerted a potent influence. Among the eminent painters of this period at least two must be given more than passing attention. One of the most noted of them was Raphael (1483–1520), a native of Urbino, and perhaps the most popular artist of the entire Renaissance. The lasting appeal of his style is due primarily to its charm, its simple humanism, rather than to any power of thought or emotional fervor behind it. Although Raphael was an ardent admirer of Leonardo da Vinci and copied many technical features of his work, for the most part he remained loyal to the ideals of sweetness and piety inherited from his earlier teachers. He was inclined to glorify form and color for their own sake and to despise intellectual meaning. Never disturbed by the mental perplexities of Leonardo da Vinci or the emotional torments of Michelangelo, he devoted himself to the cultivation of an ideal type of beauty as an end in itself and to the expression of religious sentiments. Among his greatest works are the *School of Athens* and the *Sistine Madonna*.

The towering giant of the Cinquecento in painting was Michel-

angelo (1475–1564). Beset by the hardships of poverty, harassed by grasping relatives, and torn by the emotional conflicts of his own tempestuous nature, Michelangelo appears as one of the most tragic figures in the history of art. His dark presentiments were often reflected in his work, with the result that some of his paintings are overwrought and almost morbidly pessimistic. Nevertheless, the sense of tragedy he implanted in the scenes he portrayed was not really personal but universal. After the manner of the Greek dramatists he conceived of the tragic fate of mortals as something external to man himself, a product of the cosmic order of things. If there was any one theme which dominated all of his work, it was humanism in its most intense and eloquent form. He considered the pathos and nobility of man as the only legitimate subjects of art. Rocks and trees and flowers meant nothing to him, not even as background. Michelangelo's grandest achievement as a

Michelangelo



Michelangelo, *The Creation of Adam.* One of a series of fresco paintings on the ceiling of the Sistine Chapel in Rome. Suggesting philosophical inquiries into the meaning of life and the universe, it represents Renaissance realism at its height.

painter was the series of frescoes he produced on the ceiling of the Sistine Chapel and on the wall above the altar. The sheer physical labor required to complete the task was prodigious. For four and a half years he toiled on a lofty scaffold, most of the time face upward, covering the six thousand square feet of ceiling with nearly four hundred figures, many of them as much as ten feet in stature. The series embraces a number of scenes in the mighty epic of the human race according to Christian legend. Among them are *God Dividing the Light from the Darkness*, *God Creating the Earth*, *The Creation of Adam*, *The Fall of Man*, *The Deluge*, and so on. The culminating scene is *The Last Judgment*, which Michelangelo finished some thirty years later on the wall back of the altar. Sometimes referred to as the most famous painting in the world, this scene depicts a Herculean Christ damning the great mass of mankind to perdition. Although the subject matter is Christian, the spirit is thoroughly pagan, as indicated by the naked and muscular

figures and the suggestion of a ruthless deity who punishes men beyond their deserts. Nowhere else is Michelangelo's conception of universal tragedy more strongly expressed than in this work of his lonely old age.

Italian Renaissance sculpture: Donatello

Medieval sculpture, as we have already seen, was not an independent art but a mere adjunct of architecture. During the Italian Renaissance a gradual evolution began which ultimately had the effect of freeing sculpture from its bondage to architecture and establishing its status as a separate art frequently devoted to secular purposes. Though the work of a number of earlier artists pointed the way to this evolution, the first great master of Renaissance sculpture was Donatello (1386?–1466). He emancipated his art from Gothic mannerisms and introduced a more vigorous note of individualism than did any of his predecessors. His statue of David standing triumphant over the body of the slain Goliath established a precedent of naturalism and of glorification of the nude which sculptors for many years afterward were destined to follow. Donatello also produced the first monumental equestrian statue in bronze since the time of the Romans, a commanding figure of the *condottiere*, Gattamelata.



Gattamelata, by Donatello. This imposing figure of a *condottiere* was probably the first monumental equestrian statue since the time of the Romans. On the Piazza in front of St. Anthony's Church, Padua.

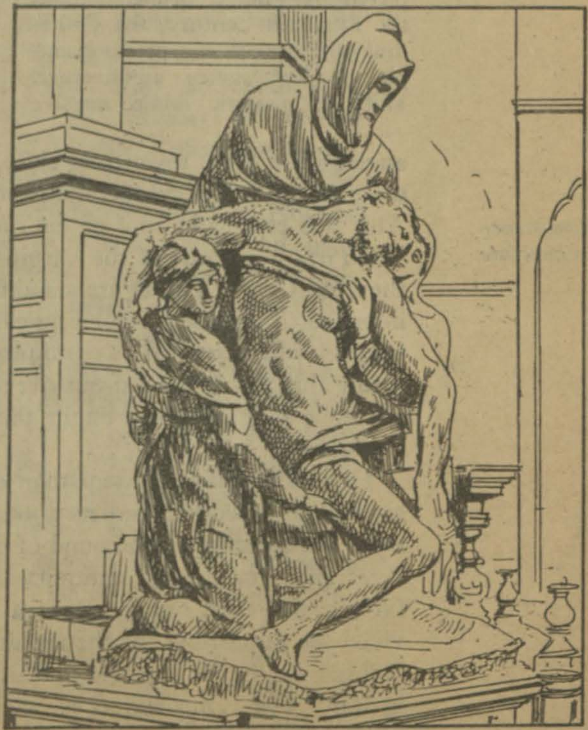
Michelangelo, greatest of Renaissance sculptors

One of the greatest sculptors of the Italian Renaissance, and probably of all time, was Michelangelo. Sculpture, in fact, was the artistic field of Michelangelo's personal preference. Despite his success as a painter he considered himself unfitted for that work. Whether he was ever particularly happy as a sculptor might be open to debate, for he smashed some of the works upon which he had spent months of labor and invested others with the same quality of hopeless pessimism that characterized much of his painting. The dominant purpose which motivated all of his sculpture was the expression of thought in stone. His art was above mere naturalism, for he subordinated nature to the force and sweep of his ideas. Other features of his work included the use of distortion for powerful effect, preoccupation with themes of disillusionment and tragedy, and a tendency to express his philosophical ideas in allegorical form.

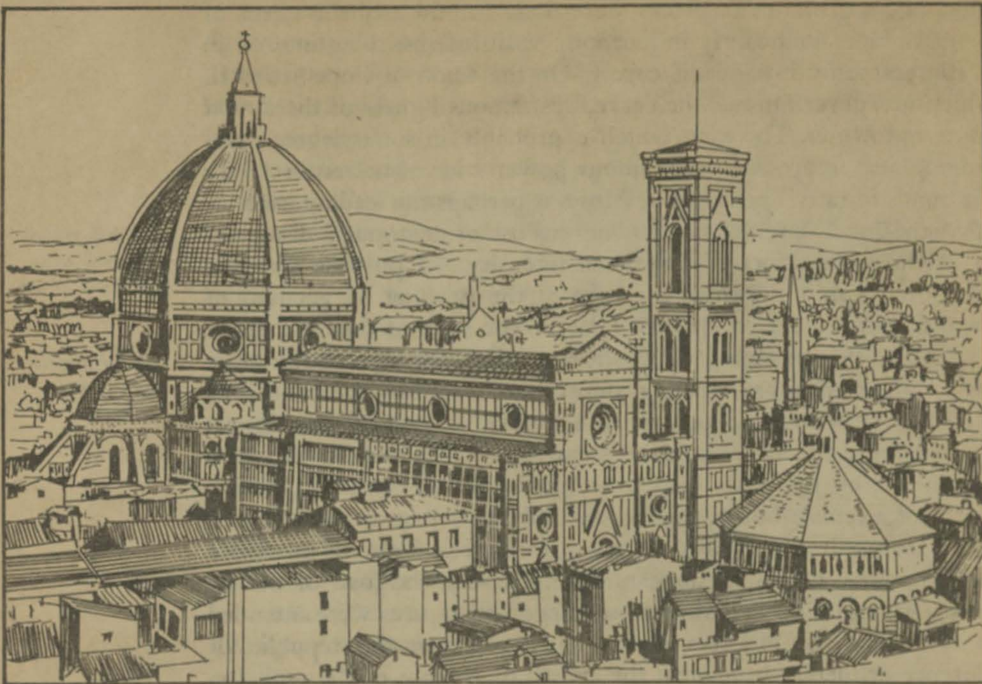
Most of his great masterpieces were done for the embellishment of tombs, a fact significantly in harmony with his absorbing interest in death, especially in his later career. On the tomb of Pope Julius II, which was never finished, he carved his famous figures of the *Bound Slave* and *Moses*. The first, which is probably in some degree autobiographical, represents tremendous power and talent restrained by the bonds of fate. The statue of Moses is perhaps the leading example of Michelangelo's sculpture showing his use of anatomical distortion to heighten the effect of emotional intensity. Its purpose was evidently to express the towering rage of the prophet on account of the disloyalty of the children of Israel to the faith of their fathers.

Michelangelo's allegorical sculpture

Certain other examples of Michelangelo's work as a plastic artist create an even more striking impression. On the tombs of the Medici in Florence he produced a number of allegorical figures representing such abstractions as sorrow and despair. Two of them are known by the traditional titles of *Dawn* and *Sunset*. The first is that of a female figure, turning and raising her head like someone called from a dreamless sleep to awake and suffer. *Sunset* is the figure of a powerful man who appears to sink under the load of human misery around him. Whether these allegorical figures were intended to symbolize the disasters which had overtaken the republic of Florence or merely to express the artist's own sense of the repletion of disappointment and defeat in the world is unknown. As Michel-



Pietà, by Michelangelo. This portrayal of tragedy was made by the sculptor for his own tomb. Note the distortion for effect exemplified by the elongated body and left arm of the Christ. The figure in the rear is Nicodemus, but was probably intended to stand as a symbol of Michelangelo himself. Original in the Cathedral of Florence.



The Cathedral of Florence. Completed by Filippo Brunelleschi in the Fifteenth Century, the Cathedral of Florence is a prime example of Renaissance architecture. With its majestic dome, massive construction, and horizontal lines, it harks back to the Romans. The bell tower, or campanile, however, begun by Giotto, reflects medieval influence.

angelo's life drew toward its close, he tended to introduce into his sculpture a more exaggerated and spectacular emotional quality. This was especially true of his *Pieta*, intended for his own tomb. The *Pieta* is a statue of the Virgin Mary grieving over the body of the dead Christ. The figure standing behind the Virgin is probably intended to represent Michelangelo himself contemplating the stark tragedy which seemed to epitomize the reality of life. It is perhaps fitting that this profound but overwrought interpretation of human existence should have brought the Renaissance epoch in sculpture to a close.

Renaissance architecture

To a much greater extent than either sculpture or painting, Renaissance architecture had its roots in the past. The new building style was eclectic, a compound of elements derived from the Middle Ages and from pagan antiquity. It was not the Hellenic or the Gothic, however, but the Roman and the Romanesque which provided the inspiration for the architecture of the Italian Renaissance. Neither the Greek nor the Gothic had ever found a congenial soil in Italy. The Romanesque, by contrast, was able to flourish there, since it was more in keeping with Italian traditions, while the per-

sistence of a strong admiration for Latin culture made possible a revival of the Roman style. Accordingly, the great architects of the Renaissance generally adopted their building plans from the Romanesque churches and monasteries and copied their decorative devices from the ruins of ancient Rome. The result was an architecture based upon the cruciform floor plan of transept and nave and embodying the decorative features of the column and arch, or the column and lintel, the colonnade, and frequently the dome. Horizontal lines predominated; and, though many of the buildings were churches, the ideals they expressed were the purely secular ones of joy in this life and pride in human achievement. The finest example of Renaissance architecture is St. Peter's church in Rome, built under the patronage of Popes Julius II and Leo X and designed by the most celebrated architects of the time—Bramante, Raphael, and Michelangelo. Profusely decorated with costly paintings and sculpture, it remains to this day the most magnificent church in the world.

II. PHILOSOPHY AND SCIENCE The Common impression that the Renaissance represented in every way a marked improvement over the Middle Ages is not strictly true. Such was especially not the case in the realm of philosophy. The early philosophers of the Italian Renaissance rejected Scholasticism, which had given a very high place to the exercise of human reason, and wallowed in a mass of childish superstitions and mystical puerilities. Since the Scholastics had made Aristotle their intellectual god, the majority of the early humanists decided to go back to Plato. The leaders in this movement were such men as Marsiglio Ficino (1433–1499), and Pico della Mirandola (1463–1494), both of whom were members of the Platonic Academy founded by Cosimo de' Medici. Unfortunately the Platonism of these men was far from being the pure variety. The bulk of it was made up of the Neo-Platonist teachings of Plotinus together with various mythological accretions which had been accumulated throughout the Middle Ages. The exponents of this philosophy were as blindly uncritical in following what they believed to be the teachings of Plato as any medievalist in his devotion to Aristotle. Indeed, one of the great aims of the Academy was to reconcile Platonism and Christianity and thereby to build a new faith in which worship of the pagan past would hold equal sway with the promise of a life to come. Pico della Mirandola went one step farther and urged a universal religion composed of a mixture of Platonism, Christianity, and the Jewish Kabbala, that fantastic compound of magic, numerology, and mysticism which had been elaborated mainly by followers of Philo and the Neo-Pythagoreans from the pre-Christian era to the end of the Middle Ages.

Italian Renaissance philosophy: the Neo-Platonists

But not all the Italian humanists were ecstatic worshipers of Plato. Some in their zeal for a revival of pagan culture sought to reawaken an interest in Aristotle for his own sake and not as a bulwark of

Christianity. Others became Stoics, Epicureans, or Skeptics. The most original philosophers of the Italian Renaissance were Lorenzo Valla, Leonardo da Vinci, and Niccolo Machiavelli. The fearless and sensational ventures of Lorenzo Valla into the field of historical criticism have already been noted. He was equally unconventional as a philosopher. Declaring himself a follower of Epicurus, he avowed the highest good to be tranquil pleasure, condemned asceticism as utterly vain and worthless, and insisted that it is irrational to die for one's country. Although Leonardo da Vinci wrote nothing that could be called a philosophical treatise, he may yet be considered a philosopher in the true sense of the word; for he was one of the first to condemn unequivocally the reliance upon authority as a source of truth, and he urged the use of the inductive method. It may be worth while also in these troublous times to take note of his strictures on war, which he called "that most bestial madness." He wrote that "It is an infinitely atrocious thing to take away the life of a man," and he even refused to divulge the secret of one of his inventions for fear it might be used by unscrupulous rulers to increase the barbarity of war.[1]

Lorenzo Valla and Leonardo da Vinci

Niccolo Machiavelli is by far the most famous—and also the most infamous—political philosopher of the Italian Renaissance. No man did more than he to overturn the basic political doctrines of the Middle Ages, especially the ideas of limited government and the ethical basis of politics. He frankly avowed his preference for absolutism as necessary to solidify and strengthen the state, and he expressed his profoundest contempt for the medieval idea of a moral law limiting the authority of the ruler. For him, the state was an end in itself. The supreme obligation of the ruler was to maintain the power and safety of the country over which he ruled. Whatever the means necessary to enable him to fulfill that obligation, the prince should not shrink from adopting them. No considerations of justice or mercy or the sanctity of treaties should be allowed to stand in the way. Cynical in his views of human nature, Machiavelli maintained that all men are prompted exclusively by motives of self-interest, particularly by desires for personal power and material prosperity. The head of the state should therefore take nothing for granted as to the loyalty or affection of his subjects. He should assume that all men are his potential rivals and should endeavor to play them off one against another for his own advantage. Machiavelli also rejected the medieval notion that a static society is desirable. He affirmed, on the contrary, that a state must either expand and develop or undergo the certainty of decay.[2] Notwithstanding the reproaches that have been heaped upon Machiavelli for his unmoral

Machiavelli's political philosophy

1. Edward MacCurdy, ed., *The Notebooks of Leonardo da Vinci*, Vol. I, p. 24.
2. Machiavelli's political ideas are found mainly in *The Prince* and in his *Discourses on Livy*. In the latter work he condemned feudalism and defended the republican form of government as preferable to monarchy for most states.

teachings, he remains a significant figure in the history of political theory. Not only his divorce of politics from ethics, but also his suggestion of a positive law created by the state and maintained by physical force, in place of the law of nature, serves to make him the real progenitor of modern conceptions of government. He is significant also as the first important realist in political theory since the time of Polybius. He described the state not in accordance with some lofty ideal but as it actually was in his own day. And it is a deplorable fact that the essential parts of his description would fit the official practices of most rulers ever since.

Science in the Italian Renaissance

Not only did the narrow attitude of the early humanists in Italy retard the progress of philosophy; it also hindered for some time the advancement of science. The early humanists, as we have seen, were not critically minded. They accepted the authority of the Neo-Platonists with a gullibility worthy of the Dark Ages. Moreover, their interests were in art and literature, not in science. Part of this emphasis may undoubtedly be attributed to the fact that the leaders of the Renaissance for some time had only a limited knowledge of Greek achievements. The early pagan revival was predominantly a revival of Latin antiquity. And it will be recalled that the contributions of the Romans to science were exceedingly few and mediocre. But in spite of the unfavorable influence of early humanism, Italy became by the fifteenth century the most important center of scientific discovery in Renaissance Europe. Men from all over the continent came to study in her universities and to profit from the researches of her eminent scholars. The foundations for nearly every major discovery of the fifteenth and sixteenth centuries were laid in Italy. Such was notably the case in the fields of astronomy, mathematics, physics, and medicine.

The revival and proof of the heliocentric theory

The achievement *par excellence* in astronomy was the revival and proof of the heliocentric theory. Contrary to the popular opinion, this was the work not of any one man but of several. It will be remembered that the idea of the sun as the center of our universe had originally been set forth by the Hellenistic astronomer Aristarchus in the third century B.C. But then, some four hundred years later, the theory of Aristarchus had been superseded by the geocentric explanation of Ptolemy. For more than twelve centuries thereafter the Ptolemaic theory was the universally accepted conclusion as to the nature of the physical universe. The Romans seem never to have questioned it, and it was adopted as a cardinal dogma by the Saracenic and Scholastic philosophers. It was first openly challenged about the middle of the fifteenth century by Nicholas of Cusa, who argued that the earth is not the center of the universe. Soon afterward Leonardo da Vinci taught that the earth rotates on its axis and denied that the apparent revolutions of the sun actually occur. In 1496 the now famous Pole, Nicholas Copernicus, came down into Italy to complete his education in civil and canon

law. For ten years he studied in the universities of Bologna, Padua, and Ferrara, adding to his course in the law such subjects as mathematics and medicine. He also acquired an interest in astronomy and studied and worked for some years with the leading professors of that science. Upon returning to Poland he established his own observatory and devoted many weary nights to a study of the heavens. Lacking a telescope, he was able to make only a few observations with crude instruments he had devised for measuring the height and position of the sun and various stars. His conclusion that the planets revolve around the sun was based primarily upon mathematical calculations and upon hints received from Italian scientists and from the works of ancient astronomers. Fearing the hostility of the church, he refrained from publishing the results of his work until 1543. The proof sheets of his book, *On the Revolutions of the Heavenly Spheres*, were brought to him on his deathbed.

Galileo's achievements in astronomy

The most important astronomical evidence for the heliocentric theory was furnished by the greatest of Italian scientists, Galileo Galilei (1564–1642). With a telescope which he had perfected to a magnifying power of thirty times, he discovered the satellites of Jupiter, the rings of Saturn, and spots on the sun.[1] He was able also to determine that the Milky Way is a collection of celestial bodies independent of our solar system and to form some idea of the enormous distances of the fixed stars. Though there were many who held out against them, these discoveries of Galileo gradually convinced the majority of scientists that the main conclusion of Copernicus was true. The final triumph of this idea is commonly called the Copernican Revolution. Few more significant events have occurred in the intellectual history of the world; for it overturned the medieval world-view and paved the way for modern conceptions of mechanism, skepticism, and the infinity of time and space. Unfortunately it contributed also to the decline of humanism and the degradation of man, since it swept man out of his majestic position at the center of the universe and reduced him to a mere particle of dust in an endless cosmic machine.

The Copernican Revolution

Leonardo da Vinci and Galileo, greatest of Renaissance physicists

In the front rank among the physicists of the Renaissance were Leonardo da Vinci and Galileo. If Leonardo da Vinci had failed completely as a painter, his contributions to science would entitle him to everlasting fame. Not the least of these were his achievements in physics. His researches in the fields of hydraulics and hydrostatics went far beyond anything previously attempted. His conclusion that "every weight tends to fall toward the center by the shortest way" contained the kernel of the law of gravitation.[2] In addition to his accomplishments in pure science he worked out

[1] Galileo was not the original inventor of the telescope. That honor is usually accorded to Johannes Lippershey, an obscure optician who lived in the Low Countries about the beginning of the seventeenth century. Galileo learned of Lippershey's invention and improved upon it in a single night.

[2] Edward MacCurdy, ed., *The Notebooks of Leonardo da Vinci*, Vol. I, p. 18.

the principles of an astonishing variety of inventions, including a diving boat, a steam engine, an armored fighting car, and a marble saw. Galileo is especially noted as a physicist for his law of falling bodies. Skeptical of the traditional theory that bodies fall with a speed directly proportional to their weight, he demonstrated by actual test from the leaning tower of Pisa that the distance covered in the fall increases as the square of the time involved. Rejecting the Scholastic notions of absolute gravity and absolute levity, he taught that these are purely relative terms, that all bodies have weight, even those which like the air are invisible, and that in a vacuum all objects would fall with equal velocity. Galileo seems to have had a broader conception of a universal force of gravitation than Leonardo da Vinci, for he perceived that the power which holds the moon in the vicinity of the earth and causes the satellites of Jupiter to circulate around that planet is essentially the same as the force which enables the earth to draw bodies to its surface. He never formulated this principle as a law, however, nor did he realize all of its implications as did Newton some fifty years later.

Progress in anatomy and medicine

The record of Italian achievements in the various sciences related to medicine is also an impressive one. As early as the fourteenth century a physician by the name of Mundinus introduced the practice of dissection at the University of Bologna as the only proper source of anatomical knowledge. Somewhat later Fallopio discovered the human oviducts, or Fallopian tubes, and Eustachio described the anatomy of the teeth and rediscovered the tube which bears his name, leading from the middle ear to the throat. A number of Italian physicians contributed valuable information pertaining to the circulation of the blood. One of them described the valves of the heart, the pulmonary artery, and the aorta, while another located the valves in the veins. Even more significant was the work of certain foreigners who lived and taught in Italy. Andreas Vesalius, a native of Brussels, issued the first careful description of the human body based upon actual investigation. As a result of his extensive dissections he was able to correct many ancient superstitions, including the one about a single incorruptible bone supposed to be the necessary nucleus of the resurrection of the body. He is commonly considered the father of the modern science of anatomy. Two other physicians of foreign nationality who were heavily indebted to Italian progress in medicine were the Spaniard, Michael Servetus (1511–1553), and the Englishman, William Harvey (1578–1657). Servetus discovered the lesser or pulmonary circulation of the blood. In his work entitled *Errors concerning the Trinity* (his major interest was theology, but he practiced medicine for a living), he described how the blood leaves the left ventricle of the heart, is carried to the lungs to be purified, then returns to the heart and is conveyed from that organ to all parts of the body. But he had no idea of the return of the blood to the heart through the veins. It

The circulation of the blood

was left for William Harvey, who had studied under Italian physicians at Padua, to complete the discovery. This he did after his return to England about 1610. In his *Dissertation upon the Movement of the Heart* he described how an artery bound by a ligature would fill with blood in the section nearer the heart, while the portion away from the heart would empty, and how exactly the opposite results would occur when a ligature was placed on a vein. By such experiments he reached the conclusion that the blood is in constant process of circulation from the heart to all parts of the body and back again.

3. Renaissance Culture

Erasmus, the most civilized man of his age

The history of Renaissance literature and philosophy in the Low Countries begins and ends with Desiderius Erasmus, universally acclaimed as the Prince of the Humanists. The son of a priest and a servant girl, Erasmus was born near Rotterdam probably in the year 1466. For his early education he had the benefit of the excellent training given in the school of the Brethren of the Common Life at Deventer. Later, after his father and mother were both dead, his guardians placed him in an Augustinian monastery. Here the young Erasmus found little religion or formal instruction of any kind but plenty of freedom to read what he liked. He devoured all the classics he could get his hands on and the writings of many of the Church Fathers. When he was about thirty years of age, he obtained permission to leave the monastery and enroll in the University of Paris, where he completed the requirements for the degree of bachelor of divinity. But Erasmus never entered upon the active duties of a priest, choosing rather to make his living by teaching and writing. By extensive reading of the classics he achieved a style of Latin expression so remarkable for its wit and urbanity that everything he wrote was widely read. But Erasmus' love of the classics was not born of pedantic interest. He admired the ancient authors because they gave voice to the very ideals of naturalism, tolerance, and humanitarianism which held so exalted a place in his own mind. He was wont to believe that such pagans as Cicero and Socrates were far more deserving of the title of Saint than many a Christian canonized by the Pope. In 1536 Erasmus died in Basel at the end of a long and unfaltering career in defense of scholarship, high standards of literary taste, and the life of reason. He has rightfully been called the most civilized man of his age.

The liberal philosophy of Erasmus

As a philosopher of humanism Erasmus was the incarnation of the finest ideals of the northern Renaissance. Convinced of the inherent goodness of man, he believed that all misery and injustice would eventually disappear if only the pure sunlight of reason could be allowed to penetrate the noisome caverns of ignorance, superstition, and hate. With nothing of the fanatic about him, he stood

for liberality of mind, for reasonableness and conciliation, rather than for fierce intolerance of evil. He shrank from the violence and passion of war, whether between systems, classes, or nations. Much of his teaching and writing was dedicated to the cause of religious reform. The ceremonial, dogmatic, and superstitious extravagances in sixteenth-century Catholic life repelled him. But it was alien to his temper to lead any crusade against them. He sought rather by gentle irony, and occasionally by stinging satire, to expose irrationalism in all of its forms and to propagate a humanist religion of simple piety and noble conduct based upon what he called the "philosophy of Christ." Although his criticism of the Catholic faith had considerable effect in hastening the Protestant Revolution, he recoiled in disgust from the bigotry of the Lutherans. Neither did he have much sympathy for the scientific revival of his time. Like most of the humanists he believed that an emphasis upon science would serve to promote a crude materialism and to detract men's interests from the ennobling influence of literature and philosophy. The chief writings of Erasmus were his *Praise of Folly*, in which he satirized pedantry, the dogmatism of theologians, and the ignorance and credulity of the masses; and his *Familiar Colloquies* and *The Handbook of the Christian Knight*, in which he condemned ecclesiastical Christianity and argued for a return to the simple teachings of Jesus, "who commanded us nothing save love for one another." In a less noted work entitled *The Complaint of Peace*, he expressed his abhorrence of war and his contempt for despotic princes.

The writings of Erasmus

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But the outstanding achievements of the French Renaissance were in literature and philosophy, illustrated especially by the writings of François Rabelais (1490?–1553) and Michel de Montaigne (1533–1592). Like Erasmus, Rabelais was educated as a monk, but soon after taking holy orders he left the monastery to study medicine at the University of Montpellier. He finished the course for the bachelor's degree in the short space of six weeks and obtained his doctorate about five years later, in the meantime having served for a period as public physician in Lyon in addition to lecturing and editing medical writings. He seems from the start to have interspersed his professional activities with literary endeavors of one sort and another. He wrote almanacs for the common people, satires against quacks and astrologers, and burlesques of popular superstitions. In 1532 Rabelais published his first edition of *Gargantua*, which he later revised and combined with another book bearing the title of *Pantagruel*. Gargantua and Pantagruel were originally the names of legendary medieval giants noted for their prodigious strength and their gross appetites. Rabelais' account of their adventures served as a vehicle for his robust, sprawling wit and for the expression of his philosophy of exuberant humanism. In language far from delicate he satirized the practices of the church, ridiculed

Rabelais

Gargantua and Pantagruel

Scholasticism, scoffed at superstitions, and pilloried every form of bigotry and repression. No man of the Renaissance was a more uncompromising individualist or exhibited more zeal in glorifying the human and the natural. For him every instinct of man was healthy, provided it was not directed toward tyranny over others. In common with Erasmus he believed in the inherent goodness of man, but unlike the great Prince of the Humanists he was a thoroughgoing pagan, rejecting not only Christian dogma but Christian morality as well. Any degree of restraint, intellectual or moral, was repugnant to Rabelais. His celebrated description of the abbey of Theleme, built by Gargantua, was intended to show the contrast between his conception of freedom and the Christian ascetic ideal. At Theleme there were no clocks summoning to duties and no vows of celibacy or perpetual membership. The inmates could leave when they liked; but while they remained they dwelt together "according to their own free will and pleasure. They rose out of their beds when they thought good; they did eat, drink, labour, sleep, when they had a mind to it, and were disposed for it. None did awake them, none did offer to constrain them . . . for so Gargantua had established it. In all their Rule and strictest tie of their order there was but this one clause to be observed, *Do what thou wilt.*"

Montaigne

A man of far different temperament and background was Michel de Montaigne (1533–1592). His father was a Catholic, his mother a Jewess who had become a Protestant. Almost from the day of his birth their son was subjected to an elaborate system of training. Every morning he was awakened by soft music, and he was attended throughout the day by servants who were forbidden to speak any language but Latin. When he was six years old he was ready for the College of Guienne at Bordeaux and at the age of thirteen began the study of law. After practicing law for a time and serving in various public offices, he retired at thirty-seven to his ancestral estate to devote the remainder of his life to study, contemplation, and writing. Always in delicate health, he found it necessary now more than ever to conserve his strength. Besides, he was repelled by the bitterness and strife he saw all around him and for that reason all the more anxious to find a refuge in a world of intellectual seclusion.

Montaigne's philosophy of skepticism and disenchantment

Montaigne's ideas are contained in his famous *Essays*, written during his years of retirement. The essence of his philosophy is skepticism in regard to all dogma and final truth. He knew too much about the diversity of beliefs among men, the welter of strange customs revealed by geographic discoveries, and the disturbing conclusions of the new science ever to accept the idea that any one sect had exclusive possession of "the Truth delivered once for all to the saints." It seemed to him that religion and morality were as much the product of custom as styles of dress or habits of eating. He taught that God is unknowable, and that it is as foolish to "weep that we shall not exist a hundred years hence as it would be to weep that

we had not lived a hundred years ago." Man should be encouraged to despise death and to live nobly and delicately in this life rather than to yearn piously for an after-existence that is doubtful at best. Montaigne was just as skeptical in regard to any assumption of final truth in philosophy or science. The conclusions of reason, he taught, are sometimes fallacious, and the senses often deceive us. The sooner men come to realize that there is no certainty anywhere the better chance they will have to escape the tyranny which flows from superstition and bigotry. The road to salvation lies in doubt, not in faith. A second element in Montaigne's philosophy was cynicism. He could see no real difference between the morals of Christians and those of infidels. All sects, he pointed out, fight each other with equal ferocity, except that "there is no hatred so absolute as that which is Christian." Neither could he see any value in crusades or revolutions for the purpose of overthrowing one system and establishing another. All human institutions in his judgment were about equally futile, and he therefore considered it fatuous that man should take them so seriously as to wade through slaughter in order to substitute one for its opposite. No ideal, he maintained, is worth burning your neighbor for. In his attitude toward questions of ethics Montaigne was not such a ribald champion of carnality as Rabelais; yet he had no sympathy for asceticism. He believed it ridiculous that men should attempt to deny their physical natures and pretend that everything connected with sense is unworthy. "Sit we upon the highest throne in the world," he declared, "yet we do but sit upon our own behind." The philosophy of Montaigne, tinctured as it was with escapism and disenchantment, marked a fitting close of the Renaissance in France. But in spite of his negative attitude he did more good in the world than most of his contemporaries who founded new faiths or invented new excuses for absolute monarchs to enslave their subjects. Not only did his ridicule help to quench the flames of the cruel hysteria against witches, but the influence of his skeptical teachings had no small effect in combating fanaticism generally and in paving the way for a more generous tolerance in the future.

Montaigne's tolerance

Few would deny that the most gifted writer of the Spanish Renaissance was Miguel de Cervantes (1547–1616). His great masterpiece, *Don Quixote*, has even been described as "incomparably the best novel ever written." Composed in the best tradition of Spanish satirical prose, it recounts the adventures of a Spanish gentleman (Don Quixote) who has been slightly unbalanced by constant reading of chivalric romances. His mind filled with all kinds of fantastic adventures, he finally sets out at the age of fifty upon the slippery road of knight-errantry. He imagines windmills to be glowering giants and flocks of sheep to be armies of infidels, whom it is his duty to rout with his spear. In his disordered fancy he mistakes inns

The satirical novel of Cervantes

for castles and the serving-wenches within them for courtly ladies on fire with love of him. The advances they have no intention of making he must graciously repel in order to prove his devotion to his own Dulcinea. Set off in bold contrast to the ridiculous knight-errant is the figure of his faithful squire, Sancho Panza. The latter represents the ideal of the practical man, with his feet on the ground and content with the substantial pleasures of eating, drinking, and sleeping. The book as a whole is a pungent satire on feudalism, especially on the pretensions of the nobles as the champions of honor and right. Its enormous popularity was convincing proof that medieval civilization was largely extinct even in Spain.

The early English humanists

The earliest philosophers of the English Renaissance may best be described simply as humanists. But while they were not unmindful of the value of classical studies, they were interested chiefly in the more practical aspects of humanism. Most of them desired a simpler and more rational Christianity and looked forward to an educational system freed from the dominance of medieval logic. Others were concerned primarily with individual freedom and the correction of social abuses. The greatest of these early thinkers was Sir Thomas More, esteemed by contemporary humanists as "excellent above all his nation." Following a successful career as a lawyer and as Speaker of the House of Commons, More was appointed in 1529 Lord Chancellor of England. He was not long in this position, however, until he incurred the enmity of his royal master, Henry VIII. More was loyal to Catholic universalism and did not sympathize with the king's design of establishing a national church under subjection to the state. When in 1534 he refused to take the Oath of Supremacy acknowledging the king as the head of the Church of England, he was thrown into the Tower. A year later he was tried before a packed jury, convicted, and beheaded. More's philosophy is contained in his *Utopia*, which he published in 1516. Purporting to describe an ideal society on an imaginary island, the book is really an indictment of the glaring abuses of the time—of poverty undeserved and wealth unearned, of drastic punishments, religious persecution, and the senseless slaughter of war. The inhabitants of Utopia hold all their goods in common, work only six hours a day so that all may have leisure for intellectual pursuits, and practice the natural virtues of wisdom, moderation, fortitude, and justice. Iron is the precious metal "because it is useful," war and monasticism are abolished, and tolerance is granted to all creeds that recognize the existence of God and the immortality of the soul. Despite criticism of the *Utopia* as deficient in wit and originality, the conclusion seems justified that the author's ideals of humanity and tolerance were considerably in advance of those of most other men of his time.

The philosophy of Sir Thomas More

The thinker who has gone down in history as the greatest of all English Renaissance philosophers is Sir Francis Bacon. Born in 1561,

the son of a high government official, Bacon was nurtured in the lap of luxury until the age of seventeen when the death of his father compelled him to work for a living. Thereafter the dominating ambition of his life was to obtain some profitable position with the government which would enable him to pursue his intellectual interests. Probably it was this mania for security which accounts for the shady morality of his public career. When occasion arose, he did not shrink from concealing his true beliefs, from disloyalty to his friends, or from sharing in graft. In 1618 he was appointed Lord Chancellor, but after a scant three years in this office he was impeached for accepting bribes. Despite his protestations that the taking of money from litigants had never influenced his decisions, he was convicted and sentenced to pay a fine of $200,000 and to undergo imprisonment in the Tower "at the king's pleasure." King James I remitted the fine and limited the term of imprisonment to four days. Bacon devoted the remaining five years of his life to writing, especially to the completion of the third and enlarged edition of his essays. Among his most valuable works are the *Novum Organum* and *The Advancement of Learning*.

Sir Francis Bacon

Bacon's monumental contribution to philosophy was the glorification of the inductive method. He was by no means the discoverer of that method, but he trumpeted it forth as the indispensable ground of accurate knowledge. He believed that all seekers of truth in the past had stumbled in darkness because they were slaves of preconceived ideas or prisoners in the dungeons of Scholastic logic. He argued that in order to overcome these obstacles the philosopher should turn to the direct observation of nature, to the accumulation of facts about things and the discovery of the laws that govern them. Induction alone, he believed, was the magic key which would unlock the secrets of truth. Authority, tradition, and syllogistic logic should be as sedulously avoided as the plague. But admirable as these teachings are, they were honored by Bacon himself almost as much in the breach as in the observance. He believed in astrology, divination, and witchcraft. However successful he may have been in clearing his mind of ancient dogma, he was not a good enough scientist to perceive the validity of the Copernican theory. Moreover, the distinction he drew between ordinary knowledge and the truths of religion was hardly in keeping with his stanch defense of induction. "The senses," he wrote, "are like the sun, which displays the face of the earth, but shuts up that of the heavens." For our voyage to the realm of celestial truth, we must "quit the small vessel of human reason and put ourselves on board the ship of the Church, which alone possesses the divine needle for justly shaping the course. The stars of philosophy will be of no further service to us. As we are obliged to obey the divine law, though our will murmur against it, so we are obliged to believe in the word of God, though our reason is shocked at it. The more absurd and incredible

Bacon's inductive philosophy

any divine mystery is, the greater honor we do God in believing it." It was not such a far cry after all from Roger Bacon in the thirteenth century to Francis Bacon in the seventeenth.

English Renaissance literature

In literature, also, the English followed much more closely in the footsteps of their medieval forerunners than did the Renaissance writers in any other country with the exception of Italy. Indeed, it is difficult to say just when the English Renaissance in literature began. Chaucer's great work, the *Canterbury Tales*, written toward the end of the fourteenth century, is commonly considered medieval; yet it breathed a spirit of earthiness and of lusty contempt for the mystical quite as pronounced as anything to be found in the writings of Shakespeare. If there were any essential differences between the English literature of the Renaissance and that produced during the late Middle Ages, they would consist in a bolder individualism, a stronger sense of national pride, and a deeper interest in themes of philosophic import. The first great poet in England after the time of Chaucer was Edmund Spenser (1552?–1599). His immortal creation, *The Faërie Queene*, is a colorful epic of England's greatness in the days of Queen Elizabeth. Though written as a moral allegory to express the author's desire for a return to the virtues of chivalry, it celebrates also the joy in conquest and much of the gorgeous sensuousness typical of Renaissance humanism. The rich music of its style and its wealth of picturesque incident have endowed the poem with lasting popularity.

The Elizabethan dramatists

But the most splendid achievements of the English in the Elizabethan Age were in the realm of drama. Not since the days of the Greeks had the writing of tragedies and comedies attained such heights as were reached in England during the sixteenth and early seventeenth centuries. Especially after 1580 a galaxy of playwrights appeared whose work outshone that of all their predecessors in nearly two thousand years. Included in this galaxy were such luminaries as Christopher Marlowe, Beaumont and Fletcher, Ben Jonson, and Shakespeare, of whom the first and the last are chiefly significant to the historian. Better than anyone else in his time, Christopher Marlowe embodies the insatiable egoism of the Renaissance—the everlasting craving for the fullness of life, for unlimited knowledge and experience. His brief but stormy career was a succession of scandalous escapades and fiery revolts against the restraints of convention until it was terminated by his death in a tavern brawl before he was thirty years old. The best known of his plays, entitled *Doctor Faustus*, is based upon the legend of Faust, in which the hero sells his soul to the devil in return for the power to feel every possible sensation, experience every possible triumph, and know all the mysteries of the universe.

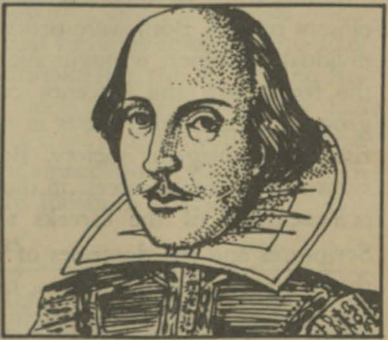
William Shakespeare, the most talented genius in the history of drama since Euripides, was born in 1564 into the family of a petty tradesman in the provincial market town of Stratford-on-Avon.

His life is enshrouded in more mists of obscurity than the careers of most other great men. It is known that he left his native village when he was about twenty years old, and that ultimately he drifted to London to find employment in the theater. Tradition relates that for a time he earned his living by holding the horses of the more prosperous patrons of the drama. How he eventually became an actor and still later a writer of plays is unknown, but there is evidence that by the time he was twenty-eight he had already acquired a reputation as an author sufficient to excite the jealousy of his rivals. Before he retired to his native Stratford about 1610 to spend the rest of his days in ease, he had written or collaborated in writing nearly forty plays, to say nothing of 150 sonnets and two narrative poems.

The life and writings of William Shakespeare

In paying homage to the universality of Shakespeare's genius, we must not lose sight of the fact that he was also a child of the Renaissance. His work bore the deep impression of most of the virtues and defects of Renaissance humanism. Almost as much as Boccaccio or Rabelais, he personified that intense love of things human and earthly which had characterized most of the great writers since the close of the Middle Ages. Moreover, like the majority of the humanists, he showed a limited concern with the problems of politics and the values of science. Virtually the only political theory that interested him greatly was whether a nation had a better chance of prospering under a good king who was weak or under a bad king who was strong. Though his knowledge of the sciences of his time was extensive, he regarded them as consisting primarily of alchemy, astrology, and medicine. But the force and range of Shakespeare's intellect were far from being bounded by the narrow horizons of the age when he lived. While few of the works of his contemporaries are now widely read, the plays of Shakespeare still hold their rank as a kind of secular Bible wherever the English language is spoken. The reason lies not only in the author's unrivaled gift of expression, but especially in his scintillating wit and his profound analysis of human character assailed by the storms of passion and tried by the whims of fate.

The character of Shakespeare's work



William Shakespeare. Portrait made for the First Folio edition of his works, 1623.

CHAPTER 16 The Reformation

The later stages of the Renaissance accompanied by a religious revolution

Preceding chapters have described the unfolding of a marvelous culture which marked the transition from the Middle Ages to the modern world. It became apparent that this culture, known as the Renaissance, was almost as peculiarly an echo of the past as a herald of the future. Much of its literature, art, and philosophy, and all of its superstitions, had roots which were deeply buried in classical antiquity or in the fabulous centuries of the Middle Ages. Even its humanism breathed veneration for the past. Only in science and politics and in the vigorous assertion of the right of the individual to live as unconventionally and as dangerously as he liked was there much that was really new. But the Renaissance in its later stages was accompanied by the growth of another movement, the Reformation, which somewhat more accurately foreshadowed the modern age. This movement included two principal phases: the Protestant Revolution, which broke out in 1517 and resulted in the secession of most of northern Europe from the Roman faith; and the Catholic Reformation, which reached its height about 1560. Although the latter is not called a revolution, it really was such in nearly every sense of the term; for it effected a profound alteration of some of the notable features of late medieval Catholicism.

The relation between the Renaissance and the Reformation

In a number of ways the Renaissance and the Reformation were closely related. Both were products of that powerful current of individualism which wrought such havoc to the established order in the fourteenth and fifteenth centuries. Each had a similar background of economic causes in the growth of capitalism and in the rise of a bourgeois society. Both partook of the character of a return to original sources: in the one case, to the literary and artistic achievements of the Greeks and Romans; in the other, to the Scriptures and the doctrines of the Church Fathers. But in spite of these important resemblances, it is misleading to think of the Reformation as merely the religious aspect of the Renaissance. The guiding principles of the two movements really had little in common. The essence of the Renaissance was enjoyment of this life and indifference to the supernatural. The spirit of the Reformation was otherworldliness and contempt for the things of the flesh as vastly inferior to the spiritual. In the judgment of the humanist, man's nature was inherently good; in the view of the Reformer, it was unspeakably corrupt and depraved. The leaders of the Renaissance believed in reason and tolerance; the followers of Luther and Calvin emphasized faith and conformity. While both the Renaissance and the Reformation aimed at a recovery of the past, each

was really oriented in an altogether different direction. The past which the humanists strove to revive was Greek and Roman antiquity, though they actually continued a much larger number of late medieval traditions, especially in literature, than they were willing to admit. The Reformers, by contrast, were interested chiefly in a return to the teachings of St. Paul and St. Augustine; not only did they reject the humanist idea of a revival of pagan achievements, but the Protestants among them, at least, proposed to throw overboard practically the whole body of late medieval institutions and doctrines.

The Reformation not really a part of the Renaissance

For reasons such as these it seems justifiable to conclude that the Reformation was not really a part of the Renaissance movement. In actual fact, it represented a much sharper break with the civilization of the Feudal Age than ever did the movement led by the humanists. The radical Reformers would have nothing to do with the basic theories and practices of thirteenth-century Christianity. Even the simple religion of love and selflessness for the betterment of man, as taught by St. Francis of Assisi, appeared to repel them almost as much as the mysteries of the sacramental theory or the bombastic claims of Innocent III to spiritual and temporal power. In the main, the religious results of this clash with medieval Christianity have endured to this day. Moreover, the Reformation was intimately bound up with certain political trends which have persisted throughout the modern era. Nationalism, as we shall see, was one of the principal causes of the Protestant Revolution. While it is true that several of the humanists wrote under the influence of national pride, perhaps the majority were swayed by altogether different considerations. Many were scornful of politics, being interested solely in man as an individual; others, the great Erasmus among them, were thoroughly international in their outlook. But the Protestant Reformers could scarcely have gained much of a hearing if they had not associated their cause with the powerful groundswell of national resentment in northern Europe against an ecclesiastical system which had come to be recognized as largely Italian in character.

1. The Reformation Heritage

Results of the Reformation: the effect in promoting religious toleration

The most obvious result of the Reformation was the division of western Christendom into a multitude of hostile sects. No longer was there one fold and one shepherd for the whole of Latin and Teutonic Europe as had been true in the Middle Ages. Instead, northern Germany and the Scandinavian countries had become Lutheran; England had adopted a compromise Protestantism of her own; while Calvinism had triumphed in Scotland, Holland, and French Switzerland. In the vast domain once owing allegiance to the Vicar of Christ only Italy, Austria, France, Spain and Portugal, southern Germany, Poland, and Ireland were left; and even in several of these countries aggressive Protestant minorities were a thorn in

the side of the Catholic majority. Strange as it may seem, this splintering of Christianity into rival factions was ultimately a source of some good to man. It worked in the long run to curb ecclesiastical tyranny and thereby to promote religious freedom. As the sects multiplied in various countries, it gradually became evident that no one of them could ever become strong enough to enforce its will upon the rest. Mutual toleration was made necessary in order for any of them to survive. To be sure, this was an incidental and long-delayed result, but its importance cannot be denied. If we follow the reasoning of James Madison, the mutiplication of sects was almost the only cause of religious toleration in the United States.

Other beneficial results

If there were any other beneficial results of the Reformation, they would probably consist in an added momentum to individualism and in the expansion of popular education. By asserting the right of private judgment and by simplifying ritual and organization, the leaders of the Protestant Revolution liberated man from some of the constraints of medieval ecclesiasticism. It would be a mistake, however, to assume that Lutherans, Calvinists, and Anglicans really believed at this time in genuine religious freedom. They had no interest whatever in tolerating anyone who disagreed with their own respective orthodoxies. About all they did was to set a new and stronger precedent for challenging the authority and beliefs of a universal church. By so doing they promoted self-assertion in the religious sphere in somewhat the same degree as it already existed in the political and economic spheres. A third beneficial consequence of the Reformation was its effect in promoting the education of the masses. The Renaissance, with its absorbing interest in the classics, had had the unfortunate effect of distorting the curricula of the schools into an exaggerated emphasis upon Greek and Latin and of restricting education to the aristocracy. The Lutherans, Calvinists, and Jesuits changed all of this. Ambitious to propagate their respective doctrines, they established schools for the masses, where even the son of the cobbler or peasant might learn to read the Bible and theological tracts. Practical subjects were often introduced in place of Greek and Latin, and it is a significant fact that some of these schools eventually opened their doors to the new science.

Limitation upon the power of rulers

A good case can be made for the theory that the Reformation furthered democracy, in the form, at least, of limited government. Every one of the sects, whether Protestant or Catholic, raised arguments against the absolute state. Even the Lutherans, despite their adoption of St. Paul's doctrine that "the powers that be are ordained of God," nevertheless recognized the right of the German princes to rebel against the Holy Roman Empire. Luther wrote that disobedience was a greater sin than murder, unchastity, dishonesty, or theft; but what he meant was the disobedience of ordinary men. He never denied the right of princes and kings to protect their subjects, by armed rebellion if necessary, against a tyrant. A simi-

lar attitude, that rebellion can be lawfully waged only by lower magistrates, was the position originally taken by the Calvinists. From such a position, however, it was a comparatively easy step to the doctrine that the people themselves have the right to rebel against intolerable oppression. Calvinists in France, England, and the Low Countries not only asserted the right of revolution but actively practiced it. Jesuit philosophers taught that the authority of the secular ruler is derived from the people, and some even affirmed the right of the ordinary citizen to kill a tyrant. Among the leaders of almost every sect, efforts were made to revive the medieval idea of a higher law of nature, embodying principles of right and justice, which should be recognized as an automatic limitation upon the power of rulers. To this day religious bodies have played an important role in movements to restrict the authority of the omnipotent state.

Bigotry, witchcraft, and persecution

Actual warfare between nations and sects was not the only type of barbarity which the Reformation directly encouraged. For other examples we need only recall the atrocities perpetrated by the Catholic Inquisition, the savage persecution of Anabaptists in Germany, and the fierce intolerance of Calvinists against Catholics. The horrible witchcraft persecution, which will be discussed in the next chapter, was also in large measure the product of the seeds of fanaticism sown by the Reformation. On the whole, the amount of intolerance was now much greater than at any other time in the history of Christianity, not excepting the age of the Crusades. In more than one instance the victims of persecution were distinguished philosophers or scientists, whose talents the world of that day could ill afford to lose. The most eminent of the martyrs to the new learning put to death by the Catholics was Giordano Bruno. Despite his philosophy of mystical pantheism, Bruno set forth in startling fashion a number of the cardinal axioms of modern science. He taught the eternity of the universe, revived the atomic theory of matter, and denied that the heavenly bodies contain any superior element not found in the earth. Partly for these teachings and partly also for his pantheism and for his rejection of miracles, he was haled before the Inquisition and burned at the stake in 1600. One of the victims of Calvinist persecution at Geneva was Michael Servetus, the discoverer of the lesser circulation of the blood. Servetus was convicted of rejecting the doctrines of the Trinity and predestination and of teaching that Palestine is a barren country in defiance of the Old Testament description as a land flowing with milk and honey. In 1553 he was condemned to be burned at the stake by slow fire. Some admirers of Calvin have argued that the Genevan Reformer opposed the burning of Servetus: he wanted him beheaded! But even the evidence for this rather doubtful display of mercy is not conclusive.

Aside from the persecution of men of learning, the Reformation was a blow to the progress of enlightenment in still other ways. The aim of the Protestant Reformers was to encourage an absolute reliance upon faith and a belief in the Bible as the final source of religion and truth. This led them to despise intellectual activity as a brazen attempt to assert man's independence of God. Luther blasted against reason as "the devil's harlot" and adjured his followers to "keep to revelation and don't try to understand." Both Luther and Melanchthon condemned the Copernican astronomy on the ground that it was contrary to the Scriptures. The attitude of the leaders of the Catholic Reformation was no better. The Council of Trent included the following in its official decrees: "When God commands us to believe, he does not propose to have us search into his divine judgments, nor to inquire their reasons and causes, but demands an immutable faith. . . . Faith, therefore, excludes not only all doubt, but even the desire of subjecting its truth to demonstration." This seemed to shift the emphasis from one of the cardinal principles of the Catholic philosophy of the late Middle Ages. "Subjecting its truth to demonstration" was the very thing which the great masters of thirteenth-century Scholasticism had considered most essential.

The attacks upon reason and science

CHAPTER 17 The Intellectual Revolution of the Seventeenth and Eighteenth Centuries

1. *Philosophy in the Seventeenth Century*

The rationalism and dualism of René Descartes

Perhaps without straining the imagination too much, we can say that the Intellectual Revolution had a triple paternity. Its fathers were René Descartes, Sir Isaac Newton, and John Locke. More will be said later about Newton and Locke. For the present we need to examine the teachings of the renowned Frenchman who initiated the dominant philosophic trend of the seventeenth century. René Descartes (1596–1650), soldier of fortune, mathematician, and physicist, was an unswerving advocate of rationalism in philosophy. He was, of course, not the first exponent of reason as the pathway to knowledge; but his rationalism differed from that of most earlier thinkers—the medieval Scholastics, for instance—in his rigid exclusion of authority. He scorned the use of books, no matter how venerable the reputation of their authors. Convinced that both traditional opinion and the ordinary experiences of mankind are untrustworthy guides, he determined to adopt a new method entirely

unprejudiced by either. This method was the mathematical instrument of pure deduction. It would consist in starting with simple, self-evident truths or axioms, as in geometry, and then reasoning from these to particular conclusions. Descartes believed that he had found such an axiom in his famous principle: "I think, therefore I am." From this he maintained that it is possible to deduce a sound body of universal knowledge—to prove, for example, that God exists, that man is a thinking animal, and that mind is distinct from matter. These "truths," he declared, are just as infallible as the truths of geometry, for they are products of the same unerring method.

Descartes' conception of a mechanistic universe

But Descartes is important not only as the father of the new rationalism. He was also partly responsible for introducing the conception of a mechanistic universe. He taught that the whole world of matter, organic and inorganic alike, could be defined in terms of extension and motion. "Give me extension and motion," he once boldly declared, "and I will construct the universe." The entire mass of physical substance, he asserted, is continually moving in a series of whirlpools or vortices, some of them infinitely small and others large enough to carry the planets around their suns. Every individual thing—a solar system, a star, the earth itself—is a self-operating machine propelled by a force arising from the original motion given to the universe by God. Descartes did not even exclude the bodies of animals and of men from this general mechanistic pattern. The whole world of physical nature is one. The behavior of animals and the emotional reactions of men flow automatically from internal or external stimuli. He insisted, however, that man is distinct from all other creatures in the possession of a reasoning faculty. Mind is not a form of matter, but an entirely separate substance implanted in the body of man by God. Its seat is the pineal gland, located in the upper region of the skull. Along with this dualism of mind and matter, Descartes also believed in *innate* ideas. He taught that self-evident truths having no relation to sensory experience must be inherent in the mind itself. Man does not learn them through the use of his senses, but perceives them instinctively because they have been part of his mental equipment from birth.

Descartes' intellectual successors: Benedict Spinoza

Of the several teachings of Descartes the new rationalism and mechanism were by far the most influential. In fact, these two doctrines were almost sufficient in themselves to have produced a revolution, for they involved the rejection of nearly all the theological bias of the past. No longer need the philosopher pay homage to revelation as a source of truth; reason was now held to be the solitary fount of knowledge, while the whole idea of spiritual meaning in the universe was cast aside like a worn-out garment. Descartes' principles of rationalism and mechanism were adopted in some form or other by the majority of the philosophers of the seventeenth century. The most noted of his intellectual successors were the Dutch Jew Benedict Spinoza and the Englishman Thomas Hobbes.

THE GROWTH AND

	Western Europe	Eastern and Central Europe
1500–	Tudor Dynasty in England, 1485–1603	
	Sir Francis Bacon, 1561–1626	
	Shakespeare, 1564–1616	
	Beginning of international law: Hugo Grotius, 1583–1645	
	Spanish Armada, 1588	
	Bourbon Dynasty in France, 1589–1792	
	Edict of Nantes, 1598	
	Classicism in literature and the arts, 1600–1750	
1600–	Mercantilism, 1600–1789	Cameralism, 1600–1800
	Thirty Years' War, 1618–1648	
	Colbert, 1619–1683	
	Deism, 1630–1800	
	Rationalism in philosophy, 1637–1700	
	Puritan Revolution in England, 1640–1649	
	Beginning of modern state system, 1648	
1650–	Commonwealth and Protectorate in England, 1649–1659	
	Restoration of Stuart Dynasty, 1660–1688	
	Revocation of Edict of Nantes, 1685	
	Newton's law of gravitation, 1687	
	Glorious Revolution in England, 1688–1689	Peter the Great, 1682–1725
	The Enlightenment, 1680–1800	
1700–	John Locke, *Two Treatises of Civil Government*, 1690	
	Age of Enlightened Despots, 1740–1796	
		Frederick the Great, 1740–1786
	Physiocrats, 1750–1800	
	Romanticism, 1750–1800	
	Rousseau, *The Social Contract*, 1762	
	Seven Years' War, 1756–1763	Mozart, 1756–1791
	Beginning of factory system, *ca.* 1770	Catherine the Great, 1762–1796
1775–	Joseph Priestley discovers oxygen, 1774	
	Adam Smith, *Wealth of Nations*, 1776	
		Romanticism, 1780–1830
		Kant, *The Critique of Pure Reason*, 1781
	French Revolution, 1789–1799	Goethe, *Faust*, 1790–1808
	Reign of Terror, 1793–1794	
	Edward Jenner develops vaccination for smallpox, 1796	
	Coup d'état of Napoleon, 1799	

DECAY OF ABSOLUTISM *(ca. 1500–1800)*

The Americas	India and the Far East
Voyages of discovery and exploration, 1450–1600	
Conquest of Mexico, 1522	
Conquest of Peru, 1537	Arrival of Portuguese traders in China and Japan, 1537–1542
	Jesuit missionaries active in China and Japan, 1550–1650
	Akbar the Great Mogul, 1556–1605
	British East India Co. chartered, 1600
Founding of Jamestown, 1607	Tokugawa Shogunate, 1603–1867
Landing of Pilgrims, 1620	Taj Mahal, 1632–1647
	Japanese isolation, 1637–1854
	Manchu Dynasty in China, 1644–1912
	Maratha Confederacy in India, 1650–1760
Benjamin Franklin, 1706–1790	Decline of Mogul Empire in India, 1700–1800
French and Indian War, 1754–1763	
The Stamp Act, 1765	
American War for Independence, 1775–1783	
Declaration of Independence, 1776	
Constitutional Convention (Philadelphia), 1787	
U.S. Constitution goes into effect, 1789	
Bill of Rights, 1791	

whom we have already encountered as a political theorist. Benedict (or Baruch) Spinoza was born in Amsterdam in 1632 and died an outcast from his native community forty-five years later. His parents were members of a group of Jewish immigrants who had fled from persecution in Portugal and Spain and had taken refuge in the Netherlands. At an early age Spinoza came under the influence of a disciple of Descartes and as a result grew critical of some of the dogmas of the Hebrew faith. For this he was expelled from the synagogue, cursed by the chief priests and elders, and banished from the community of his people. From 1656 till his death he lived in various cities of Holland, eking out a meager existence by grinding lenses. During these years he developed his philosophy, incorporating the rationalism and mechanism but not the dualism of Descartes. Spinoza maintained that there is only one essential substance in the universe, of which mind and matter are but different aspects. This single substance is God, who is identical with nature itself. Such a conception of the universe was, of course, pure pantheism; but it was grounded upon reason rather than upon faith, and it was intended to express the scientific notions of the unity of nature and the continuity of cause and effect. It is not without significance that one of the greatest of modern scientists, Albert Einstein, declared that his idea of God was the same as that of Spinoza.

Spinoza's ethical philosophy

Much more than Descartes, Spinoza was interested in ethical questions. Having come to the conclusion early in life that the things men prize most highly—wealth, pleasure, power, and fame—are empty and vain, he set out to inquire whether there was any perfect good which would give lasting and unmitigated happiness to all who attained it. By a process of geometric reasoning he attempted to prove that this perfect good consists in "love of God"—that is, in worship of the order and harmony of nature. If men will but realize that the universe is a beautiful machine, whose operation cannot be interrupted for the benefit of particular persons, they will gain that serenity of mind for which philosophers have yearned through the ages. We can only be delivered from impossible hopes and cringing fears by acknowledging to ourselves that the order of nature is unalterably fixed, and that man cannot change his fate. In other words, we gain true freedom by realizing that we are not free. But with all his determinism, Spinoza was an earnest apostle of tolerance, justice, and rational living. He wrote in defense of religious liberty and, in the face of cruel mistreatment, set a noble example in his personal life of kindliness, humanity, and freedom from vengeful passions.

Thomas Hobbes

The third of the great rationalists of the seventeenth century was Thomas Hobbes. Born before either Descartes or Spinoza, he actually outlived both. Hobbes agreed with his two contemporaries in the belief that geometry furnished the only proper method of discovering philosophic truth. But he denied the doctrine of innate

ideas, maintaining that the *origin* of all knowledge is in sense perception. He likewise refused to accept either the dualism of Descartes or the pantheism of Spinoza. According to Hobbes, absolutely nothing exists except matter. Mind is simply motion in the brain or perhaps a subtle form of matter, but in no sense a distinct substance. God, also, if we can believe that He exists, must be assumed to have a physical body. There is nothing spiritual anywhere in the universe of which the mind can conceive. This was the most thoroughgoing materialism to make its appearance since the days of Lucretius. Naturally it was combined with mechanism, as materialism usually is. Hobbes contended that not only the universe but man himself can be explained mechanically. All that man does is determined by appetites or aversions, and these in turn are either inherited or acquired through experience. In similar fashion, Hobbes maintained that there are no absolute standards of good and evil. Good is merely that which gives pleasure; evil, that which brings pain. Thus did Hobbes combine with materialism and mechanism a thoroughgoing philosophy of hedonism.

2. *The Enlightenment*

The chief philosophical concepts of the Enlightenment

The climax of the Intellectual Revolution in philosophy was a movement known as the Enlightenment. Beginning in England about 1680, it quickly spread into most of the countries of northern Europe and was not without influence in America. The supreme manifestation of the Enlightenment, however, was in France, and the period of its real importance was the eighteenth century. Few other movements in history have had such profound effects in molding men's thoughts or in shaping the course of their actions. The philosophy of the Enlightenment was built around a number of significant concepts, chief among which were the following:

(1) Reason is the only infallible guide to wisdom. All knowledge has its roots in sense perception, but the impressions of our senses are but the raw material of truth, which has to be refined in the crucible of reason before it can have value in explaining the world or in pointing the way to the improvement of life.

(2) The universe is a machine governed by inflexible laws which man cannot override. The order of nature is absolutely uniform and not subject in any way to miracles or to any other form of divine interference.

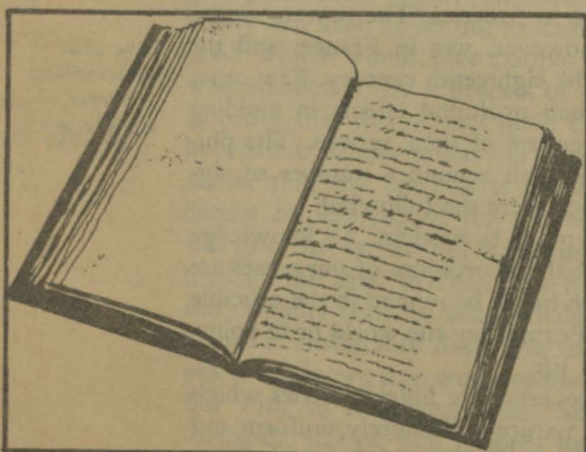
(3) The simplest and most natural structure of society is the best. The life of the "noble savage" is preferable to that of civilized man with its outworn conventions which serve to perpetuate the tyranny of priests and rulers. Religion, government, and economic institutions should be purged of everything artificial and reduced to a form consistent with reason and natural liberty.

(4) There is no such thing as original sin. Men are not inher-

ently depraved but are driven to acts of cruelty and meanness by scheming priests and war-making despots. The infinite perfectibility of human nature, and therefore of society itself, would become easily realized if men were free to follow the guidance of reason and their own instincts.

The founders of the Enlightenment: (1) Sir Isaac Newton

The inspiration for the Enlightenment came partly from the rationalism of Descartes, Spinoza, and Hobbes, but the real founders of the movement were Sir Isaac Newton (1642–1727) and John Locke (1632–1704). Although Newton was not a philosopher in the ordinary sense, his work has the deepest significance for the history of thought. His majestic achievement was to bring the whole world of nature under a precise mechanical interpretation. His celebrated principle that "every particle of matter in the universe attracts every other particle with a force varying inversely as the square of the distance between them and directly proportional to the product of their masses" was held to be valid not only on this earth but throughout the endless expanse of solar systems. From this it was an easy step to the conclusion that every event in nature is governed by universal laws, which can be formulated as precisely as mathematical principles. The discovery of these laws is the chief business of science, and the duty of man is to allow them to operate unhindered. Gone was the medieval conception of a universe guided by benevolent purpose; men now dwelt in a world in which the



The Manuscript of Newton's *Philosophia Naturalis Principia Mathematica*, from which the first edition was published in 1687.

procession of events was as automatic as the ticking of a watch. Newton's philosophy did not rule out the idea of a God, but it deprived Him of His power to guide the stars in their courses or to command the sun to stand still.

The influence of John Locke was quite different from that of Newton, but it was scarcely any less important. Locke was the fa-

ther of a new theory of knowledge, which served as the keynote of the philosophy of the Enlightenment. Rejecting Descartes' doctrine of innate ideas, he maintained that all of man's knowledge originates from sense perception. This theory, known as sensationalism, had already been asserted by Hobbes; but Locke was the first of modern philosophers to develop it in systematic form. He insisted that the human mind at birth is a blank tablet, a "white paper," upon which absolutely nothing is inscribed. It does not even contain the idea of a God or any notions of right and wrong. Not until the newborn child begins to have experiences, to perceive the external world with its senses, is anything registered in its mind. But the simple ideas which result directly from sense perception are merely the foundations of knowledge; no human being could live intelligently on the basis of them alone. These simple ideas must be integrated and fused into *complex ideas*. This is the function of the reason or understanding, which has the power to combine, coordinate, and organize the impressions received from the senses and thus to build a usable body of general truth. Sensation and reason are both indispensable—the one for furnishing the mind with the raw materials of knowledge and the other for working them into meaningful form. It was this combination of sensationalism and rationalism which became one of the basic elements in the philosophy of the Enlightenment. Locke is significant also for his defense of religious toleration and for his liberal political theory, which will be discussed in the chapter on The French Revolution.

(2) John Locke

The Enlightenment blossomed forth in its fullest glory in France during the eighteenth century under the leadership of Voltaire and other like-minded critics of the established order. Voltaire, or François Marie Arouet as he was originally named, epitomized the Enlightenment in somewhat the same way as Luther did the Reformation or Leonardo da Vinci the Italian Renaissance. A son of the bourgeoisie, Voltaire was born in 1694 and, despite his delicate physique, lived to within eleven years of the outbreak of the French Revolution. He developed a taste for satiric writing early in his life and got himself into numerous scrapes by his ridicule of noblemen and pompous officials. As a consequence of one of his lampoons he was sent to the Bastille and afterwards exiled to England. Here he remained for three years, acquiring a deep admiration for British institutions, and composing his first philosophic work, which he entitled *Letters on the English*. In this work he popularized the ideas of Newton and Locke, whom he had come to regard as two of the greatest geniuses who ever lived. Most of his later writings—the *Philosophical Dictionary*, *Candide*, his histories, and many of his poems and essays—were also concerned with exposition of the doctrine that the world is governed by natural laws, and that reason and concrete experience are the only dependable guides for man to follow. Voltaire had contempt for the smug optimism which taught

Voltaire, the supreme incarnation of the Enlightenment

that the ills of each make up the good of all, and that everything is for the best in the best of all possible worlds. He saw, on the contrary, universal misery, hatred, strife, and oppression. Only in his utopia of El Dorado, which he placed somewhere in South America, were freedom and peace conceivable. Here there were no monks, no priests, no lawsuits, and no prisons. The inhabitants dwelt together without malice or greed, worshiping God in accordance with the dictates of reason, and solving their problems by logic and science. But this idyllic life was made possible only by the fact that the land was cut off by impassable mountains from the "regimented assassins of Europe."

Voltaire as a champion of individual liberty

Voltaire is best known as a champion of individual freedom. He regarded all restrictions upon liberty of speech and opinion as utterly barbarous. In a letter to one of his opponents he wrote what has often been quoted as the highest criterion of intellectual tolerance: "I do not agree with a word that you say, but I will defend to the death your right to say it." But if there was any one form of repression that Voltaire abhorred more than others, it was the tyranny of organized religion. He blasted with fire and brimstone against the monstrous cruelty of the church in torturing and burning intelligent men who dared to question its dogmas. With reference to the whole system of persecuting and privileged orthodoxy, he adopted as his slogan, "Crush the infamous thing." He was almost as unsparing in his attacks upon political tyranny, especially when



Voltaire, by Jean Antoine Houdon (1741–1828). The noted French sculptor seems to have captured the sardonic attitude of the great foe of superstition and unreason. In front of Théâtre Français, Paris.

it resulted in the slaughter of thousands to glut the ambitions of despots. "It is forbidden to kill," he sarcastically asserted: "therefore all murderers are punished unless they kill in large numbers and to the sound of trumpets."

Among the other philosophers of the Enlightenment in France were Denis Diderot, Jean d'Alembert, Claude Helvetius, and Baron d'Holbach, all of whom lived in the latter part of the eighteenth century. Diderot and d'Alembert were the chief members of a group known as the Encyclopedists, so-called from their contributions to the *Encyclopedia*, which was intended to be a complete summation of the philosophic and scientific knowledge of the age. In general, both of them agreed with the rationalism and liberalism of Voltaire. Diderot, for example, maintained that "men will never be free till the last king is strangled with the entrails of the last priest." D'Alembert, while accepting the rationalist and individualist tendencies of the Enlightenment, differed from most of his associates in advocating a diffusion of the new doctrines among all the people. The general attitude of his contemporaries, notably Voltaire, was to despise the common man, to regard him as a mere clodhopper beyond redemption from ignorance and grossness. But for d'Alembert the only assurance of progress lay in universal enlightenment. Accordingly, he maintained that the truths of reason and science should be taught to the masses in the hope that eventually the whole world might be freed from darkness and tyranny.

Other philosophers of the Enlightenment: the Encyclopedists

The renown of Helvetius and Holbach comes chiefly from their extremist views of materialism and mechanism. They argued that nothing but physical substance exists, and that man differs from the lower animals solely in being more complex. Holding to such doctrines as these, they inevitably minimized the importance of religion. In their view, faith in a personal God or in rewards and punishments after death serves no useful purpose, either as an explanation of the world or as a basis of good conduct. Helvetius, especially, contended that self-interest, springing from the desire for pleasure and the avoidance of pain, is an ample foundation for morality. He believed that men's evil intentions would be curbed by the fear of retaliation, and that the feeling of pleasure resulting from an unselfish act would outweigh any element of pain. He is often credited with having been the first to use the famous phrase, "the greatest good of the greatest number." Holbach went farther than any of his contemporaries in drawing logical deductions from the theory of mechanism. He taught that the universe is nothing but matter perpetually in motion; it never had a beginning and will never have an end. Every object and organism in it acquires its shape and form from the continuous flux of matter. This was a return to the ancient Greek conception of an eternal universe in constant process of evolution.

Helvetius and Holbach

While the Enlightenment was of much less importance in Germany than in France or England, it did give birth to some progressive ideas. The most widely recognized of its German leaders was Gotthold Lessing (1729–1781), primarily a dramatist and critic but also a philosopher of humane and far-sighted views. The essence of

The Enlightenment in Germany

his philosophy is tolerance, founded upon a sincere conviction that no one religion has a monopoly of truth. In his play, *Nathan the Wise*, he expounded the idea that nobility of character has no particular relation to theological creeds. He maintained that, historically, men of charitable spirit were as often found among Jews and Moslems as among Christians. Largely for this reason he condemned adherence to any one system of dogma and taught that the development of each of the world's great religions (Christianity included) was simply a step in the spiritual evolution of mankind. One of Lessing's friends and disciples turned out to be the foremost Jewish philosopher of the Enlightenment. His name was Moses Mendelssohn (1729–1786), and he was a sickly product of the ghetto in the German town of Dessau. Agreeing with Lessing that religions should be judged by their effects upon the conduct of their followers, Mendelssohn urged his Jewish brethren to give up their notion of themselves as the Chosen People of God. They should look upon Judaism merely as one of a number of good religions. He recommended also that Jews should renounce their clannishness, that they should cease to long for a return to Zion, and that they should adapt themselves to the civic requirements of the countries in which they lived. His teachings, along with those of Moses Maimonides, the great rationalist Jew of the twelfth century, were among the principal sources of what has since come to be known as Reform Judaism.

David Hume, the foremost skeptic of the Enlightenment

Two other philosophers are commonly given a place in the Enlightenment—the Scotsman, David Hume (1711–1776), and the Frenchman, Rousseau (1712–1778). Neither, however, was in full agreement with the majority of his contemporaries. Hume is noted above all for his skepticism. He taught that the mind is a mere bundle of impressions, derived exclusively from the senses and tied together by habits of association. That is, we learn from experience to associate warmth with fire and nourishment with bread. If we had never actually experienced the sensation of warmth, no reasoning faculty in our minds would enable us to draw the conclusion that fire produces heat. But constant repetition of the fact that when we see a flame we generally experience warmth leads to the habit of associating the two in our minds. Impressions and associations are all that there is to knowing. Since every idea in the mind is nothing but a copy of a sense impression, it follows that we can know nothing of final causes, the nature of substance, or the origin of the universe. We cannot be sure of any of the conclusions of reason except those which, like the principles of mathematics, can be verified by actual experience. All others are likely to be the products of feelings and desires, of animal urges and fears. In thus denying the competence of reason, Hume placed himself almost entirely outside the main intellectual trend of the Enlightenment. As a matter of fact, he helped to prepare its death.

In similar measure Jean Jacques Rousseau repudiated many of the basic assumptions which had stemmed from Newton and Locke. A hopeless misfit wallowing in the mire of his emotions, Rousseau would have been a marvel indeed if he had championed the rationalist doctrines of the Enlightenment. Whole segments of his personality appear to have been out of joint. He failed in nearly every occupation he undertook. He preached lofty ideals of educational reform, but abandoned his own children to a foundling asylum. He quarreled with everybody and reveled in morbid self-disclosures. Undoubtedly it was these qualities of temperament which were largely responsible for his revolt against the coldly intellectual doctrines of his contemporaries. He maintained that to worship reason as the infallible guide to conduct and truth is to lean upon a broken reed. Reason, of course, has its uses, but it is not the whole answer. In the really vital problems of life it is much safer to rely upon feelings, to follow our instincts and emotions. These are the ways of nature and are therefore more conducive to happiness than the artificial lucubrations of the intellect. The "thinking man is a depraved animal." Yet notwithstanding his contempt for reason, Rousseau was in other ways thoroughly in agreement with the viewpoint of the Enlightenment. He extolled the life of the "noble savage" even more fervently than did any of his associates. In his prize-winning essay, the *Discourse on the Arts and Sciences*, he contrasted the freedom and innocence of primitive men with the tyranny and wickedness of civilized society, even insisting that the progress of learning is destructive of human happiness. He shared the impatience of the Enlightenment with every sort of restriction upon individual freedom, though he was much more concerned about the liberty and equality of the masses than were the other reformers of his time. He regarded the origin of private property as the primary source of misery in human society.

Rousseau's antirationalism

It would be almost impossible to fix limits to the influence of Rousseau. As the first significant writer to uphold the validity of conclusions dictated by emotion and sentiment, he is commonly considered the father of romanticism. For fifty years after his time Europe was bathed in literary tears, and it was difficult to find a philosopher who would boldly assert the inerrancy of reason. His slogan, "Back to nature," furnished the foundation for a veritable cult dedicated to the pursuit of the simple life. The new fashion spread even to the simpering courtiers at Versailles. The queen herself designed a dainty rural village in a corner of the palace grounds and diverted herself by playing milkmaid. But Rousseau's influence was not limited to the founding of romanticism and the encouragement of sentimental devotion to nature. His dogmas of equality and popular sovereignty, though frequently misinterpreted, became the rallying cries of revolutionaries and of thousands of more moderate opponents of the existing regime. And, as the chapter on The

The influence of Rousseau

French Revolution will show, it was Rousseau's political philosophy which provided the real inspiration for the modern ideal of majority rule.

The religious doctrines of the Enlightenment: deism

The most typical religious philosophy of the Enlightenment was deism. The originator of this philosophy appears to have been an Englishman by the name of Lord Herbert of Cherbury (1583–1648). In the eighteenth century deistic doctrines were propagated by such men as Voltaire, Diderot, and Rousseau in France; Alexander Pope, Lord Bolingbroke, and Lord Shaftesbury in England; and Thomas Paine, Benjamin Franklin, and Thomas Jefferson in America. Not satisfied with condemning the irrational elements in religion, the deists went on to denounce every form of organized faith. Christianity was spared no more than the others. Institutionalized religions were branded as instruments of exploitation, devised by wily scoundrels to enable them to prey upon the ignorant masses. As Voltaire expressed it, "the first divine was the first rogue who met the first fool." But the aims of the deists were not all destructive. They were interested not merely in demolishing Christianity but in constructing a simpler and more natural religion to replace it. The fundamental tenets of this new religion were about as follows: (1) there is one God who created the universe and ordained the natural laws that control it; (2) God does not intervene in the affairs of men in this world: He is not a capricious deity, like the God of the Christians and Jews, making "one vessel unto honour and another unto dishonour" in accordance with His peculiar whims; (3) prayer, sacraments, and ritual are mere useless mumbo jumbo; God cannot be wheedled or bribed into setting aside natural law for the benefit of particular persons; (4) man is endowed with freedom of will to choose the good and avoid the evil; there is no predestination of some to be saved and others to be damned, but rewards and punishments in the life hereafter are determined solely by the individual's conduct on earth.

The influence of the Enlightenment

Naïve though many of its assumptions were, the influence of the Enlightenment was tremendous. No other movement, with the possible exception of humanism, had done more to dispel the accumulated fogs of superstition and illogical restraint which still enveloped the Western world. The rationalism of the Enlightenment helped to break the shackles of political tyranny and to weaken the power of conscienceless priests. Its ideal of religious freedom was a leading factor in the ultimate separation of church and state and in the liberation of the Jews from ancient restrictions. The humanitarianism implied in the opposition to oppression carried over into agitation for penal reform and for the abolition of slavery. The desire for a natural order of society contributed to a demand for the overthrow of relics of feudalism and for the destruction of monopoly and unearned privilege. If there was any evil result of the Enlightenment, it probably consisted in an exaggerated develop-

ment of individualism. Liberty of the individual against political and religious tyranny was unfortunately too easily translated into the right of the strong to satisfy economic greed at the expense of the weak.

3. Revolutionary Scientific Discoveries

The major scientific interests of the Intellectual Revolution followed very largely the paths marked out during the late Renaissance. Accordingly, primary attention was given to the physical sciences. The first significant discoveries were made in mathematics and physics. Early in the seventeenth century René Descartes invented analytical geometry, a union of geometry and algebra. Soon afterward came the development of the infinitesimal calculus by Sir Isaac Newton and Gottfried Wilhelm Leibniz (1646–1716). Embracing as it does the mathematical analysis of continuously varying quantities, the calculus is an essential instrument for computation in engineering and in the higher branches of mechanics.

Achievements in the physical sciences: (1) mathematics

Unquestionably the most illustrious physicist of the Intellectual Revolution was Sir Isaac Newton. His conclusions molded men's thinking in philosophy for a hundred years. His influence upon science was even more lasting; the Newtonian physics stood virtually unchallenged until the twentieth century. It was in 1687 that Newton published his renowned law of universal gravitation. Based in part upon the work of Galileo, this law provided a single unifying principle for the entire world of matter. Besides, it removed all doubt as to the validity of the Copernican hypothesis and placed the study of celestial mechanics on a firm scientific foundation. But Newton's researches in physics were not confined to the problem of gravitation. He devised a series of tables, of great value to navigation, by which the changing positions of the moon among the stars could be accurately predicted. He invented the sextant for measuring these positions and thereby determining latitude and longitude. His achievements in spectrum analysis proved of substantial value in paving the way for later discoveries regarding the nature of light. He shares with Galileo the honor of being the father of modern physics.

(2) physics

Some preliminary progress was made during the Intellectual Revolution in connection with the understanding of electrical phenomena. At the beginning of the seventeenth century the Englishman, William Gilbert, discovered the properties of lodestones and introduced the word "electricity" into the language. Other scientists quickly became interested, and sensational results were anticipated from experiments with the marvelous "fluid." A learned Jesuit even suggested that two persons might communicate at a distance by means of magnetized needles which would point simultaneously to identical letters of the alphabet. More substantial work was done

(3) progress in the understanding of electrical phenomena

by Stephen Gray (d. 1736) and Charles Dufay (1698–1739), who discovered that substances vary in conductivity and distinguished between positive and negative electricity. Late in the eighteenth century Alessandro Volta (1745–1827) constructed the first battery and proved the identity of "animal magnetism" with electricity. Still another important achievement in electrical physics was the invention in 1746 of the Leyden jar for the storage of electric energy. It was mainly as a result of this invention that Benjamin Franklin was able to show that lightning and electricity are identical. In his celebrated kite experiment in 1752 he succeeded in charging a Leyden jar from a thunderstorm.

(4) chemistry

Almost as spectacular as the progress in physics was the development of chemistry. If any one scientist can be called the founder of modern chemistry, the title must be given to Robert Boyle (1627–1691). The son of an Irish nobleman, Boyle achieved distinction in 1661 with the publication of his *Sceptical Chymist, or Chymico-Physical Doubts and Paradoxes*. In this work he rejected the theories not only of the alchemists but also of the medico-chemists who followed in the footsteps of Paracelsus. He thereby contributed much toward the establishment of chemistry as a pure science. In addition, he distinguished between a mixture and a compound, learned a great deal about the nature of phosphorus, produced alcohol from wood, suggested the idea of chemical elements, and revived the atomic theory. No scientist before his time had foreshadowed so much of the knowledge of modern chemistry.

The discovery of hydrogen and oxygen

Despite the work of Boyle, little further development of chemistry occurred for almost a hundred years. The reason lay partly in the wide acceptance of errors concerning such matters as heat, flame, air, and the phenomenon of combustion. The most common of these errors was the so-called phlogiston theory. "Phlogiston" was supposed to be the active principle or mystic substance in fire which caused a flame to burn and consume fuel. In the second half of the eighteenth century a number of important discoveries were made which ultimately overthrew this theory and cleared the way for a true understanding of some of the most familiar chemical reactions. First came the discovery by Joseph Black about 1755 that in the burning of limestone to make quicklime a gas is given off, which he proved to have come from the limestone itself, not from the fire. This gas, which he called "fixed air," was later shown to be carbon dioxide. In 1766 Henry Cavendish, one of the richest men in England, reported the discovery of a new kind of gas obtained by treating iron, zinc, and other metals with sulphuric acid. He showed that this gas, now known as hydrogen, would not of itself support combustion, and yet would be rapidly consumed by a fire with access to the air. In 1774 oxygen was discovered by Joseph Priestley, who had managed for some years to squeeze enough time out of his profession of Unitarian minister to per-

form some extensive experiments in natural science. He found that a candle would burn with extraordinary vigor when placed in the new gas—a fact which indicated clearly that combustion was not caused by any mysterious principle in the flame itself. A few years after this discovery Cavendish demonstrated that air and water, long supposed to be elements, are a mixture and a compound, respectively, the first being composed of oxygen and nitrogen and the second of oxygen and hydrogen.

Lavoisier

The final blow to the phlogiston theory was administered by Antoine Lavoisier (1743–1794), one of the greatest of all scientists of the Intellectual Revolution. By some he has been called "the Newton of Chemistry." Lavoisier proved that both combustion and respiration involve oxidation, the one being rapid and the other slow. He provided the names for oxygen and hydrogen, demonstrated that the diamond is a form of carbon, and argued that life itself is essentially a chemical process. But undoubtedly his greatest



Lavoisier Demonstrating the Principle of Oxidation.

accomplishment was his creation of quantitative chemistry through his discovery of the law of the conservation of mass. He found evidence that "although matter may alter its state in a series of chemical actions, it does not change in amount; the quantity of matter is the same at the end as at the beginning of every operation, and can be traced by its weight." This "law" has, of course, been modified by later discoveries regarding the structure of the atom and the conversion of some forms of matter into energy. It is hardly too much to say that as a result of Lavoisier's genius chemistry became a true science. To the lasting shame of the French Revolutionists, he was put to death on the guillotine at the age of fifty-one, a victim of the Reign of Terror.

Although it was the physical sciences which received the major attention in the Intellectual Revolution, the biological sciences were by no means neglected. One of the greatest of the early biologists was Robert Hooke (1635–1703), the first man to see and describe

The biological scientists: Hooke, Malpighi, Leeuwenhoek, and Swammerdam

the cellular structure of plants. This achievement was soon followed by the work of Marcello Malpighi (1628–1694) in demonstrating the sexuality of plants and in comparing the function of vegetable leaves with that of the lungs of animals. About the same time a Dutch manufacturer of microscopes, Anthony van Leeuwenhoek (1632–1723), discovered protozoa and bacteria and wrote the first description of human spermatozoa. The seventeenth century also witnessed some progress in embryology. About 1670 the Dutch physician, Jan Swammerdam, carefully described the life history of certain insects from the caterpillàr stage to maturity and compared the change of tadpole into frog with the development of the human embryo.

Linnaeus

In many ways the end of the seventeenth century appeared to mark a decline of originality in the sciences which deal with living things. During the next hundred years biologists were inclined more and more to center their efforts upon description and classification of knowledge already in existence. The most brilliant classifier of biological knowledge was the Swedish scientist, Carl von Linné (1707–1778), more commonly known by his Latinized name of Linnaeus. In his *System of Nature* and in his *Botanical Philosophy* Linnaeus divided all natural objects into three kingdoms: stone, animal, and vegetable. Each of these kingdoms he subdivided into classes, genera, and species. He invented the system of biological nomenclature still in use, by which every plant and animal is designated by two scientific names, the first denoting the genus and the second the species. Thus he called man *Homo sapiens*. Though some people condemned Linnaeus for presuming to rename the animals that Adam had named, his classification was nevertheless widely adopted even in his own time. Despite certain defects which have had to be corrected, it still has its value. Linnaeus is significant also for his contention that the number of species was not necessarily fixed at the time of the Creation. He even suggested that botanists might well devote their talents to the production of new plants by crossing different species.

Buffon

The second great genius of descriptive biology in the eighteenth century was the Frenchman Buffon (1707–1788). His *Natural History* in forty-four volumes, though intended as a summation of practically all science, dealt mainly with man and other vertebrates. While much of the material in this work was taken from the writings of other scientists and from the accounts of travelers, the author did have a unique ability in reducing a vast body of knowledge to orderly arrangement and in enlivening it with his own brilliant interpretations. The chief importance of Buffon to us lies in his recognition of the close relationship between man and the higher animals. Though he could never quite bring himself to accept the full implications of the evolutionary theory, he was none the less strongly impressed by the striking resemblances among all of the

higher species. He thought that man, the horse, the ass, and the apes might all be considered as members of one great family, and he admitted the possibility that the entire range of organic forms had descended from a single species.

The paucity of medical achievements in the 17th century

The development of physiology and medicine progressed rather slowly during the seventeenth century. Among the several reasons, one was the inadequate preparation of physicians, many of whom had begun their professional careers with little more training than a kind of apprenticeship under an older practitioner. Another was the common disrepute in which surgery was held as a mere trade, like that of barber or blacksmith. Perhaps the most serious of all was the prejudice against dissection of human bodies as a basis of anatomical study. As late as 1750 medical schools which engaged in this practice were in danger of destruction by irate mobs. Despite these obstacles some progress was still possible. About 1670 Malpighi and Leeuwenhoek confirmed the famous discovery of Sir William Harvey by observing the actual flow of blood through the network of capillaries connecting the arteries and veins. At approximately the same time an eminent physician of London, Thomas Sydenham, proposed a new theory of fever as nature's attempt to expel diseased material from the system. The substance of this theory is still quite generally accepted; in fact, new evidence has been discovered which strongly confirms it.

Medical progress in the 18th century

Medical progress during the eighteenth century was somewhat more rapid. Among the noteworthy achievements were the discovery of blood pressure, the founding of histology or microscopic anatomy, the development of the autopsy as an aid to the study of disease, and the recognition of scarlet fever as a malady distinct from smallpox and measles. But the chief milestones of medical advancement in this period were the adoption of inoculation and the development of vaccination for smallpox. Knowledge of inoculation came originally from the Near East, where it had long been employed by the Moslems. Information concerning its use was relayed to England in 1717 through the letters of Lady Montagu, wife of the British ambassador to Turkey. The first systematic application of the practice in the Western world, however, was due to the efforts of the great Puritan leaders, Cotton and Increase Mather, who implored the physicians of Boston to inoculate their patients in the hope of curbing an epidemic of smallpox which had broken out in 1721. By the middle of the century inoculation was quite generally employed by physicians in Europe and in America. In 1796 the milder method of vaccination was discovered by Edward Jenner. It was now revealed that direct inoculation of human beings with the deadly virus of smallpox was unnecessary: a vaccine manufactured in the body of an animal would be just as effective and much less likely to have disastrous results. Vast possibilities were thus opened up for the elimination of contagious diseases.

Geology

Among all the major sciences now commonly recognized, the only one actually originated during the Intellectual Revolution was geology. Hitherto theories of the evolution of the earth had been largely incidental to physics and astronomy. The first scientist to devote his exclusive attention to a systematic study of rocks with a view to understanding the history of our planet was James Hutton. In 1785 he reported his conclusions to the Royal Society of Edinburgh in a paper entitled *Theory of the Earth.* In this work he set forth his famous *uniformitarian* hypothesis, which has been the basis of geology ever since. This hypothesis states that the geological processes of the past were essentially the same as those of the present. Just as the earth is now being slowly changed by the action of rivers, winds, internal disturbances, and the like, so it was constantly being altered by similar causes in the remotest epochs of the past. Here was indeed a revolutionary conclusion, for it necessitated the rejection of the Biblical assumption that the earth had been created in its present form in the space of a few days.

4. Classicism in Art and Literature

The nature of the new classicism

In so far as there was any one purpose dominating the art and literature of the seventeenth and eighteenth centuries, it was the desire to preserve or recapture the spirit of ancient Greece and Rome. The artists and writers of the Intellectual Revolution strove to imitate classical models. They chose classical titles and themes for many of their works and embellished them wherever possible with allusions to antique mythology. Deploring the destruction of ancient civilization by "Christian barbarians," they were unable to see much value in the cultural achievements of later centuries. In particular, they despised the Middle Ages as a long night of barbaric darkness. Doubtless most of them would have agreed with the dictum of Rousseau that the Gothic cathedrals were "a disgrace to those who had the patience to build them." In all of these attitudes the men of the Intellectual Revolution were following in the footsteps of the humanists. Devotion to the achievements of classical antiquity was at least one important element of Renaissance culture which had not yet died out. Nevertheless, it must not be forgotten that the classicism of the seventeenth and eighteenth centuries was by no means exactly the same as that of the humanists. As a rule, it was much more sentimental, grandiose, and extravagant. Besides, it was less sincere, since it was frequently employed for the glorification of cynical monarchs and their corrupt and frivolous dependents. Finally, classicism was now perhaps even less a universal theme than it had been during the age of the Renaissance. A number of the great artists and writers of the seventeenth and eighteenth centuries sought to escape from its influence entirely.

The leading arts to be developed during the age of the Intellectual

Revolution were architecture and painting. Sculpture ceased to be an independent art, as it had been in the Renaissance, and was relegated to its earlier function of a mere aid to the adornment of buildings. The prevailing style of architecture in the seventeenth century was the so-called baroque. Originating in Italy, it spread to France, England, and Spain and was eventually adopted for churches, palaces, opera houses, museums, and government buildings in practically every Western country. In European capitals to this day it meets the eye in every direction. Among its celebrated monuments still standing are the Luxembourg palace and the main palaces

Classicism in architecture: the baroque style

Rembrandt van Rijn, *Old Woman in an Arm Chair*. The most philosophical of Dutch painters, Rembrandt is noted for his profound studies of human nature. His mastery of art was of wide scope and included single and group portraits, landscapes, and etchings. Original in the Metropolitan Museum, New York.



The rococo and the Georgian styles



The High Altar of the Theatine Church in Munich. This gorgeously carved altar alcove is one of the finest examples of a baroque interior.

at Versailles in France, St. Paul's cathedral in London, the government buildings in Vienna and Brussels, and the palaces of the Tsars at Peterhof near Leningrad in Russia. The most noted of the baroque architects were Giovanni Bernini (1598–1680), who designed the colonnade and square in front of St. Peter's church in Rome, and Sir Christopher Wren (1632–1723), whose masterpiece was St. Paul's cathedral. The baroque style was supposed to be founded upon the architecture of ancient Rome, but it was much more lavish than anything the Romans produced. Its principal features were hugeness, artificiality, extravagance of ornamentation, and the

extensive use of such "classical" elements as the column, the dome, and sculptured representations of mythological scenes. So much detail was added to the surface of the buildings that they often give the impression of having been carved, like the altars in medieval churches. A similar passion for splendor and magnificence was reflected in the enrichment of interiors with gilt and silver, flashing mirrors, and colored marble. Taken as a whole, baroque architecture may be regarded as a symbol of the rise of powerful dynastic states and the growth of an absorbing interest in luxury engendered by the Commercial Revolution.

During the eighteenth century the heavy and pompous architectural style of the age of Louis XIV gave way to still other adaptations of the classical. The first to be developed was the rococo architecture in France, so called from the fantastic scrolls and shell-like designs which were commonly employed for ornamentation. The rococo differed from the baroque not only in being lighter but also in the impression of grace and sumptuous refinement it was intended to create. In place of a struggle for dynastic power and for colonial empire, it was now the indolent ease and elegant manners of the court of Louis XV which set the standard for French society. A more delicate and effeminate architecture seemed to be necessary to accompany this change. Well-known examples of the rococo style are the Petit Trianon at Versailles (where the machinery is still shown by which the supper table of Louis XV was brought up through the floor) and the palace of Sans Souci at Potsdam, built by Frederick the Great. About the middle of the eighteenth century a reaction set in against both the rococo and the baroque, and efforts were made to produce a truer and less flamboyant imitation of the classical. Perhaps the best results were achieved in England and in the American colonies with the development of the so-called Georgian style, known on this side of the ocean as colonial architecture. Though the Georgian retained certain elements of the baroque—the columns, the dormer windows, and often the cupola or dome—it at least had the classical merit of simplicity.

Classicism in painting: the baroque tradition

To a certain extent the evolution of painting during the seventeenth and eighteenth centuries paralleled that of architecture. The greatest of the painters who may be considered to have expressed the baroque tradition were the Flemings, Peter Paul Rubens (1577–1640) and Anthony Van Dyck (1599–1641), and the Spaniard, Diego Velásquez (1599–1660). Rubens was not merely the outstanding genius among these three, but he was the greatest of all the Flemish painters. In such famous works as *The Fates Spinning* and *Venus and Adonis* he combined classical themes with the sumptuous color and richness so pleasing to the affluent burghers and nobles of his own day. The pink and rounded flesh of his full-blown nudes is thoroughly in keeping with the robust vitality of the age.

Both Rubens and his gifted pupil, Anthony Van Dyck, are noted for their portraits of rulers and nobles. These were done in highly aristocratic fashion with full attention to the gorgeous details of elegant apparel and opulent furnishings in the background. Van Dyck's best-known portraits are those of the English kings, James I and Charles I, and their families. Velasquez, the third great artist of the baroque tradition, was the court painter to Philip IV of Spain. Most of his work consisted of paintings of royal faces, suffused in soft and silvery light but empty of meaning or emotional expression.

The rococo parallel in painting

The rococo style of architecture may also be considered to have had its counterpart in painting. This was especially true in France, where a number of artists under the leadership of Antoine Watteau (1684–1721) and François Boucher (1703–1770) carried the tradition of aristocratic elegance to its farthest extreme. Their work was sentimental, decorative, and often frivolous—qualities which made it admirably suited to adorn the gaudy palaces of kings and nobles. Somewhat similar tendencies were revealed in much of the painting produced in England during the eighteenth century. The portraits of Sir Joshua Reynolds (1723–1792) and Thomas Gainsborough (1727–1788) were not only elegant and sentimental but sometimes artificial to the point of falsification. They strove to represent the most useless members of the English aristocracy as distinguished and high-minded leaders of society and occasionally portrayed ordinary ladies of the court in impressive classical poses—for example, Sir Joshua Reynolds' *Miss Emily Potts as Thaïs* and *Mrs. Siddons as the Tragic Muse*. It must be said, however, to the credit of Gainsborough that he did not confine his efforts to painting likenesses of wealthy patrons; he also excelled in depicting landscapes with considerable feeling for nature's moods.

The painters who refused to be bound by classical conventions: (1) Rembrandt

All of the painters mentioned thus far were exponents in some degree of the classical influence. But there were others in both the seventeenth and eighteenth centuries who refused to be bound by the prevailing artistic conventions. Foremost among them was Rembrandt van Rijn (1606–1669), now universally acclaimed as one of the greatest painters of all time. The son of a well-to-do miller of Leyden, Rembrandt was allowed to begin his artistic education at an early age. Under a series of native masters he learned the technique of subtle coloring and skillful depiction of the unusual in nature. Famous by the time he was twenty-five, he fell upon evil days later in his life, mainly as a consequence of bad investments and the failure of critics to appreciate his more recondite works. In 1656 he was stripped by his creditors of all he possessed, even to his table linen, and driven from his house. Apparently these reverses served mainly to broaden and deepen his philosophy, for in this very same year he produced some of his greatest achievements. As a painter Rembrandt surpassed all the other members of the Dutch

school and deserves to be classed with the great masters of the High Renaissance in Italy. No artist had a keener understanding of the problems and trials of human nature or a stronger perception of the mysteries of this life. His portraits, including those of himself, are imbued with an introspective quality and with a suggestion that the half is not being told. The subjects he delighted to paint were not the incidents of classical mythology but solemn rabbis, tattered beggars, and scenes from the Old and New Testaments, rich in drama and in human interest. Some of his best-known works include *The Good Samaritan*, *The Woman Taken in Adultery*, *The Marriage of Samson*, and *The Night Watch*.

(2) Hals and Goya

Two other noted artists of the period of the Intellectual Revolution also departed widely from the classical tradition. The first was the Dutchman, Frans Hals (1580–1666), and the second was the Spaniard, Francisco Goya (1746–1828). Like his great contemporary Rembrandt, Hals insisted upon choosing the subjects he liked, regardless of whether they conformed to the notions of genteel critics. Most of his works are realistic portraits. He loved to depict the imbecilic grin in the face of the tavern drunkard, the naïve enthusiasm of itinerant singers and players, or the bewildered misery of some beaten and hopeless derelict. Goya was not merely a rebel against accepted artistic standards but a political and social revolutionary as well. He detested the aristocracy, despised the church, and ridiculed the hypocrisy of respectable society. But he reserved his deepest contempt for absolute monarchy. His *Charles IV on Horseback* has been called "the most impudent portrait of royalty ever painted." Goya also made use of his talents to indict the cruelty of war, especially during the period when Europe was ravaged by Napoleon's armies.



Frans Hals, *The Merry Company*. The most expressive works of Hals are those illustrating the joys and tragedies of humble folk; but, like other Dutch painters, he also portrayed the life of comfortable burghers. Original in the Metropolitan Museum of Art, New York.

The history of literature in the seventeenth and eighteenth centuries exhibited tendencies quite similar to those of art. The most popular literary ideal was classicism, which generally meant not only a studied imitation of classical forms but also an earnest devotion to reason as a way of life, on the assumption that the Greeks and Romans had been rationalists above everything else. Although classicism was not confined to any one country, its principal center was France. Here lived during the reign of Louis XIV a distinguished company of poets and dramatists, who gave more genuine luster to their country than had ever been won by the Grand Monarch in his boldest exploits of diplomacy and war. The most noted member of this company was Jean-Baptiste Poquelin (1622–1673), who is much better known by his adopted name of Molière. Much of the work of these writers was marked by qualities similar to those of the baroque in art: it was decorative, turgid, affected, artificial, and in general expressive of a tendency to subordinate content to form. The writings of Molière, however, stand out as a brilliant exception. Less respectful of ancient formalism than any of his associates, Molière was the most original of French comedians. Few keener critics of human nature have ever lived. "The business of comedy," he once declared, "is to represent in general all the defects of men and especially of the men of our time." The mortal weakness he delighted most to ridicule was pretentiousness—the silly conceit of social climbers in affecting a culture beyond their intelligence or the pompous claims of ignorant physicians in professing infallible skill. But with all of his penchant for satire, Molière had a measure of pity for the evil fortunes of men. In a number of his plays sympathy and even melancholy go hand in hand with clever wit and pungent scorn. His genius was probably broader in scope than that of any other dramatist since Shakespeare.

Classicism in literature: the French poets and dramatists

England also had a luxuriant growth of literary effort in the classical style. The first great master of this style as applied to English literature was the renowned Puritan poet, John Milton (1608–1674). The leading philosopher of the Puritan Revolution, Milton wrote the official defense of the beheading of Charles I and later on held the position of Secretary for Foreign Tongues under Cromwell's Commonwealth. Nearly all of his writings were phrased in the rich and stately expression of the classical tradition, while many of the lesser ones revolved about themes from Greek mythology. But Milton was as much a Puritan as he was a classicist. He could never quite get away from the idea that the essence of beauty is morality. His *Comus* ends with the stern admonition: "Love Virtue, she alone is free." Moreover, he was deeply interested in theological problems. His greatest work, *Paradise Lost*, is a synthesis of the religious beliefs of his age, a majestic epic of the Protestant faith. But in spite of the fact that Milton was a Puritan, his views in this work departed widely from Calvinist dogma. Its principal themes are the moral

John Milton

responsibility of the individual and the importance of knowledge as an instrument of virtue. Paradise is lost repeatedly in human life to the extent that man allows passion to triumph over reason in determining the course of his actions. Milton also threw Calvinist doctrine to the winds in his *Areopagitica*, perhaps the most eloquent defense of freedom of speech in the English language.

Alexander Pope and the masters of English prose

Classicism in English literature reached its zenith in the eighteenth century in the poetry of Alexander Pope (1688–1744) and in the writings of a score of masters of prose. Pope was the great exponent in verse of the mechanistic and deistic doctrines of the Enlightenment. In such works as his *Essay on Man* and his *Essay on Criticism* he set forth the view that nature is governed by inflexible laws, and that man must study and follow nature if he would bring any semblance of order into human affairs. The chief masters of prose who wrote under classicist influence were the journalist and writer of popular fiction Daniel Defoe (1660–1731); the satirist Jonathan Swift (1667–1745); the skeptical philosopher David Hume (1711–1776), and his idealist contemporary Bishop Berkeley (1685–1753); and the historian Edward Gibbon (1737–1794), author of *The Decline and Fall of the Roman Empire*.

The origin of the modern novel

The age of classicism in English prose was also the period which witnessed the origin of the modern novel. To some extent the new literary form was anticipated by Daniel Defoe's *Robinson Crusoe*, a tale based upon the fictional adventures of a shipwrecked sailor who had spent five years on a desolate island off the coast of Chile. But the true modern novel, with its more or less elaborate plot of human behavior and its psychological analysis of life and love, springs from the work of Samuel Richardson (1689–1761) and Henry Fielding (1707–1754). In 1740 Richardson published his *Pamela, or Virtue Rewarded*, an involved and priggish account of the attempts of a Mr. B. to seduce his virtuous serving maid. Nine years later came Fielding's *The History of Tom Jones*, acclaimed by some critics as the greatest novel in the English language. Rich in humor and in colorful description of manners and customs, it is also free from the sentimentality of Richardson's works. The novels of Richardson and Fielding provided the inspiration for innumerable others, not only in England but on the Continent of Europe as well.

The beginning of romanticism in literature

Earlier in this chapter we learned that the rationalistic and mechanistic philosophy of the Enlightenment was followed by a romantic revolt, expressed first of all in the teachings of Rousseau. We have now to observe that an almost identical development took place in literature. Beginning about 1750 a reaction set in against the intellectualism and high-flown formalism involved in the classical tradition. A group of writers now demanded a return to simplicity and naturalism with less attention to man as a rational creature and more to his instincts and feelings. No longer was it considered disgraceful for the poet to show sympathy or pity or to display

any other of his deepest emotions; the heart should rule the head, at least in all cases where problems vital to man's happiness were concerned. No longer was nature regarded as a cold, automatic machine but worshiped as the embodiment of beauty, sublimity, and charm, or tenderly revered as a source of protection and solace. God now ceased to be a mere First Cause and came to be identified with the universe itself or mystically adored as the soul of nature. Still another element in the romantic ideal was glorification of the common man, often accompanied by a generous compassion for the weak and oppressed. Although some of this regard for the lowly had been implied in the humanitarianism of the Enlightenment, most of the leaders of that movement had little respect for the masses. Now under the influence of romanticism the humble herdsman and peasant were given a recognition in literature long overdue.

The early romantic poets in Britain: Gray, Goldsmith, and Burns

Though literary romanticism had its roots in France in such sentimental works as *Émile* and *The New Héloïse* of Rousseau, the movement attained its most vigorous development in Great Britain and Germany. Among the eighteenth-century romantic poets in Britain were Thomas Gray (1716–1771), author of the *Elegy Written in a Country Churchyard;* and, to a certain extent, Oliver Goldsmith (1728–1774), who celebrated the rustic innocence of Auburn, "loveliest village of the plain." The most original of them all, however, was the Scotsman Robert Burns (1759–1796). In his homely dialect verse the romantic feeling for nature and sympathy for the common man received their finest expression. No writer has inspired more tenderness for the humblest things of this earth or filled the world with a deeper respect for those who toil for their bread. Moreover, Burns was unique among poets of his age in combining an extraordinary pathos with a delicate touch of humor. He had the rare gift of being passionately earnest without being solemn. In the very last years of the eighteenth century two other romantic poets began their literary activities on British soil. Their names were William Wordsworth and Samuel Taylor Coleridge. But since most of the work of these men was done in the nineteenth century, they can be discussed more appropriately in a later chapter.

The romantic writers in Germany: (1) Schiller

The romantic movement in German literature developed primarily under the brilliant guidance of Friedrich Schiller (1759–1805) and Johann Wolfgang von Goethe (1749–1832). Schiller grew up during the period of the *Sturm und Drang* (Storm and Stress), when writers all over Germany were denouncing restraints and conventions and attempting to free the culture of their country from foreign domination. As a consequence his romanticism generally embraced as its important elements the idealization of heroic deeds and the glorification of struggles for freedom. While a very strong quality of individualism pervades a number of his plays, especially *The Robbers* and *The Maid of Orleans,* Schiller's conception of liberty seems to have been closely akin to nationalism. This is re-

vealed quite clearly in his *William Tell*, a drama of the struggle of the Swiss against Austrian tyranny. Interest in the personal fate of the hero is here very definitely subordinated to the larger issue of national independence. At times the hero even appears in a distinctly unfavorable light. This nationalistic aspect of Schiller's work was probably the one which had the major influence upon later German writers.

(2) Goethe

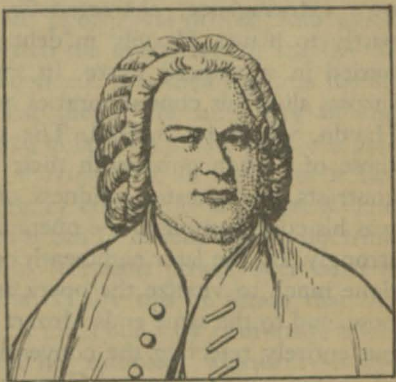
The greatest name in the history of German literature is unquestionably that of Schiller's older contemporary, Johann Wolfgang von Goethe. The two men were associated for a number of years at the court of the Duke of Weimar. Born in Frankfurt, the son of a family of ample means, Goethe was educated for the law but soon found the limits of knowledge in that profession unsatisfying. His indefatigable spirit drove him to the study of medicine, and then of the fine arts and the natural sciences. He even explored the depths of alchemy and astrology; meanwhile, however, continuing his literary efforts, which he had begun about the age of sixteen. His first important literary production was *The Sorrows of Young Werther*, a romantic novel about a love-sick youth who takes his own life with the pistol of his rival and friend. Written in dashing sentimental style, it attained an enormous popularity not only in Germany but also in England and France. Though the author apparently intended that it should express the idea that weakness of character is the greatest of sins, it came to be taken as a symbol of profound dissatisfaction with the world and as a basis of fiery revolt. In 1790 Goethe published the first part of his drama *Faust*, which he finally completed in 1831, a year before his death. Universally acknowledged as his grandest achievement, *Faust* not only epitomizes the personal philosophy of the author but expresses the spirit of the modern age as few other writings have done. Part I reflects some of the quality of rebellion in the *Sturm und Drang*, but in Part II the conviction grows that freedom from restraint is not enough; the individual must go on in an endless quest for mastery of all knowledge and for enrichment of life through unlimited experience. Considered as a whole, the drama is a symbol of perpetual unrest, of that ceaseless yearning for the fullness of life which has come to be one of the most distinctive traits of modern civilization.

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Outstanding composers of the early 18th century: (1) J. S. Bach

In the forefront of the progress of instrumental music during the first half of the eighteenth century stands the name of Johann Sebastian Bach (1685–1750), one of the greatest figures in all musical history. The Bachs of Thuringia had for several generations been noted throughout Germany as musicians, and the high reputation of the family may partially explain the underestimation of J. S. Bach by his contemporaries. Bach combined an unbounded imagination and a capacious intellect with heroic powers of discipline and an

unquenchable zeal for work. By lifelong study he made himself the master of all the existing formulas of expression; and in practically every field of serious music, with the exception of opera, his influence was marked and beneficial. He revolutionized the technique of playing keyboard instruments. Moreover, he was largely responsible for the adoption of the modern "tempered" scale, which makes it possible to play in any desired key or scale without retuning the instrument. It may be observed in this connection that he was the real founder of modern organ music, and he composed much of the best of it. In his hands the organ *fugue*—a contrapuntal form following the strictest rules—became not merely a dazzling technical feat but a vehicle of the profoundest emotion. While he composed a variety of types of instrumental music, his best-known works, aside



Johann Sebastian Bach (1685–1750).

from organ pieces, are for choral use, devised principally for the liturgy of the Lutheran service. These last range from settings of simple *chorales* of folk-song origin to elaborate masses. In spite of his versatility and unflagging industry, Bach remained to some extent apart from the age in which he lived. His works are suffused more with the spirit of the German Reformation, or even the Gothic era, than with the optimistic philosophy of the Enlightenment. They reflect a preoccupation with death and with man's yearning for redemption and contain overtones of medieval mysticism. Nevertheless, the union of perfect symmetry of form with a tender and untrammeled poetic sensitivity gives Bach's music a beauty which is unsurpassed. Ironical but all too typical were the scant recognition and material reward accorded to him. His constant activity as director, performer, and teacher did not suffice to overcome the struggle against poverty, and his widow was forced to end her days in the poorhouse at Leipzig. So eager was he to bring his works

before the public that he taught himself the art of engraving upon copper plates; yet most of his compositions remained unpublished for over a century after his death. Since then his influence has grown steadily, until the exaltation of his memory has raised him almost to the rank of a demigod.

Mozart, the supreme musical genius of the 18th century

Wolfgang Mozart (1756–1791) is regarded by many as the supreme musical exponent of the ideals of classicism. He is probably also the most striking example on record of a musical prodigy. He composed at the age of five, played in public at six, and published when seven years old. It was well that his career began early, for it was ended at the age of thirty-five, when the composer's powers were still growing. His untimely death may be attributed to the harsh circumstances that surrounded him, for which, however, his own extravagance, characteristic of many Viennese artists, was partly to blame. Heavily in debt at the time of his death, he was buried in a pauper's grave. In spite of his short life he came to surpass all of his contemporaries in the instrumental field, including Haydn, whom he revered. The superiority of his symphonies to those of Haydn consists in their lyric richness, striking harmonic contrasts, and greater boldness of conception. Equally important was his contribution to the opera, a medium which appealed to him strongly. By the later eighteenth century the able C. W. Gluck had done much to vitalize the opera and restore it to its dramatic purpose, and to the same ends Mozart applied his greater genius. Without entirely rejecting the conventional pattern, he wrote a number of operas, both Italian and German, which still rank as masterpieces, not only for the rare quality of their music but for their dramatic insight and integrity. Perhaps most notable among them are *The Magic Flute* and *Don Giovanni*. Although his creative talent was undoubtedly unique, Mozart embodied much of the essence of eighteenth-century aspirations. His art transcended national boundaries; his imagination was broad and uninhibited. His works reveal a lust for life and keen sensibility to the manifold aspects of human experience. Though sometimes melancholy, his music more often speaks the language of hope, exaltation, and triumph.

5. The Political Theory of Absolutism

The influence of political philosophers in buttressing absolute rule

The autocratic behavior of the despots in the sixteenth, seventeenth, and eighteenth centuries was not all of their own making. As indicated at the beginning of this chapter, they were encouraged by various economic and political factors for which they were not solely responsible. To these causes must be added another: the influence of political theory. Several of the Stuart and Bourbon kings, for example, derived the justification for their policies from

philosophers who expressed the prevailing ideas of their time in systematic and forceful writings. These ideas were, of course, not those of the common people, but they did reflect the desires of those whom John Adams used to call "the rich, the well-born, and the able."

Jean Bodin

One of the first of the philosophers to lend encouragement to the absolutist ambitions of monarchs was Jean Bodin (1530–1596), whose zeal in the persecution of witches had earned for him the title of "Satan's Attorney-General." Bodin was not quite so extreme as some of his colleagues in exalting monarchical power. He agreed with the medieval philosophers that rulers were bound by the law of God, and he even acknowledged that the prince had a moral duty to respect the treaties he had signed. But Bodin had no use for parliaments of any description. He emphatically denied the right of a legislative body to impose any limits upon royal power. And while he admitted that princes who violated the divine law or the law of nature were tyrants, he refused to concede that their subjects would have any right of rebellion against them. The authority of the prince is from God, and the supreme obligation of the people is passive obedience. Revolution must be avoided at all costs, for it destroys that stability which is a necessary condition for progress. The main contribution of Bodin, if such it can be called, was his doctrine of sovereignty, which he defined as "supreme power over citizens and subjects, unrestrained by the laws." By this he meant that the prince, who is the only sovereign, is not bound by man-made laws. There is no *legal* restriction upon his authority whatever—nothing except obedience to the natural or moral law ordained by God. Bodin is significant also for his theory of the origin of the state. Rejecting the old feudal doctrine of the contractual basis of political authority, he maintained that the state was an outgrowth of the patriarchal family. The prince stands in the same autocratic relation to his subjects as the father to his children. As sovereign he has a perpetual and humanly unlimited authority to make law and to impose it upon his subjects.

Thomas Hobbes

The most noted of all the apostles of absolute government was the Englishman Thomas Hobbes (1588–1679). Writing during the Puritan Revolution and in close association with the royalists, Hobbes was disgusted with the turn which events had taken in his native country and longed for a revival of the monarchy. However, his materialism and his doctrine of the secular origin of the kingship made him none too popular with the Stuarts. For the title of his chief work Hobbes chose the name *Leviathan*, to indicate his conception of the state as an all-powerful monster. All associations within the state, he declared, are mere "worms in the entrails of Leviathan." The essence of Hobbes' political philosophy is directly related to his theory of the origin of government. He taught that in the beginning all men lived in a state of nature, subject to no law

but brutal self-interest. Far from being a paradise of innocence and bliss, the state of nature was a condition of universal misery. Every man's hand was against his neighbor. Life for the individual was "solitary, poor, nasty, brutish, and short." In order to escape from this war of each against all, men eventually united with one another to form a civil society. They drew up a contract surrendering all of their rights to a sovereign, who would be strong enough to protect his subjects from violence. Thus the sovereign, while not a party to the contract, was made the recipient of absolute authority. The people gave up *everything* for the one great blessing of security. In contrast with Bodin, Hobbes did not recognize any law of nature or of God as a limitation upon the authority of the prince. Absolute government, he maintained, had been established by the people themselves, and therefore they would have no ground for complaint if their ruler became a tyrant; they had no rights he was bound to respect. On the basis of pure deduction, without any appeal to religion or history, Hobbes arrived at the conclusion that the king is entitled to rule despotically—not because he has been appointed by God, but because the people have *given* him absolute power.

Hugo Grotius

In a sense the great Dutchman, Hugo Grotius (1583–1645), may also be considered an exponent of absolutism; though with him the question of power within the state was more or less incidental to the larger question of relations among the states. Living during the period of religious strife in France, the revolt of the Netherlands, and the Thirty Years' War, Grotius was impressed by the need for a body of rules which would reduce the dealings of governments with one another to a pattern of reason and order. He wrote his famous *Law of War and Peace* to prove that the principles of elemental justice and morality ought to prevail among nations. Some of these principles he derived from the Roman *jus gentium* and some from the medieval law of nature. So well did he present his case that he has been regarded ever since as one of the chief founders of international law. His central doctrine was the idea that every independent state, regardless of its size, must be treated as fully sovereign and entitled to equal rights. This sovereignty must never be infringed by any other power. Unfortunately this doctrine led to the worship of national honor as something sacred. Almost any affront to a nation's pride—an insult to its flag or the arrest of one of its diplomats—may still be a pretext if not a cause for war. But Grotius' revulsion against turbulence also inspired him to advocate despotic government. He did not see how order could be preserved within the state unless the ruler possessed unlimited authority. He maintained that in the beginning the people had either surrendered to a ruler voluntarily or had been compelled to submit to superior force; but in either case, having once established a government, they were bound to obey it unquestioningly forever.

The theories just discussed were not simply those of a few ivory-tower philosophers, but rather the widely accepted ideas of an age when order and security were considered more important than liberty. They reflected the desire of the commercial classes, especially, for the utmost degree of stability and protection in the interest of business. Mercantilism and the policies of the despots went hand in hand with the new theories of absolute rule. The dictum, "I am the state," attributed to Louis XIV, was not just the brazen boast of a tyrant, but it came close to expressing the prevailing conception of government—in Continental Europe at least. Those who had a stake in society really believed that the king *was* the state. They could hardly conceive of a government able to protect and assist their economic activities except in terms of centralized and despotic authority. Their attitude was not so far different from that of some people today who believe that a dictatorship of one form or another is our only means for security and plenty. It seems to be true that despotism flourishes only during difficult times of transition or in periods of uncertainty or danger when men have begun to despair of solving their problems by individual effort. It is not a normal condition of society but an essentially abnormal one, covering but a fraction of human history. And nations generally manage to make short work of their Caesars as soon as the people recover sufficient confidence in their own strength. At any rate, that is what happened in England in the seventeenth century, and also in France about a hundred years later.

The significance of philosophers' attempts to justify absolutism

Every great social upheaval of modern times has developed out of a background of intellectual causes. Before a movement can reach the proportions of an actual revolution, it is necessary that it be supported by a body of ideas, providing not only a program of action but a glorious vision of the new order that is finally to be achieved. To a large extent these ideas are the product of political and economic ambitions, but in time they take on the significance of independent factors. Originally secondary or derivative causes, they ultimately become primary causes. Eventually the fulfillment of the ideas is accepted as an end in itself and draws the allegiance of men like the gospel of a new religion. The intellectual causes of the French Revolution were mainly an outgrowth of the Enlightenment. This movement produced two interesting political theories, which have exerted influence ever since. The first was the *liberal* theory of such writers as Locke and Montesquieu; and the second was the *democratic* theory of Rousseau. While the two were fundamentally opposed, they nevertheless had elements in common. Both were predicated upon the assumption that the state is a necessary evil and that government rests upon a contractual basis. Each had its doctrine of popular sovereignty, although with contrasting interpretations. And, finally, both upheld in some measure the funda-

Intellectual causes: liberal and democratic theories

mental rights of the individual.

The liberal political theory of John Locke

The father of the liberal theory of the seventeenth and eighteenth centuries was John Locke (1632–1704), although several of its doctrines had already been suggested in the writings of John Milton (1608–1674), James Harrington (1611–1677), and Algernon Sydney (1622–1683). Locke's political philosophy is contained chiefly in his *Second Treatise of Civil Government*, published in 1690. In this he developed a theory of limited government intended partly to justify the new system of parliamentary rule set up in England as a result of the Glorious Revolution. He maintained that originally all men had lived in a state of nature in which absolute freedom and equality prevailed, and there was no government of any kind. The only law was the law of nature, which each individual enforced for himself in order to protect his natural rights to life, liberty, and property. It was not long, however, until men began to perceive that the inconveniences of the state of nature greatly outweighed its advantages. With every individual attempting to enforce his own rights, confusion and insecurity were the unavoidable results. Accordingly, the people agreed among themselves to establish a civil society, to set up a government, and to surrender certain powers to it. But they did not make that government absolute. The only power they conferred upon it was the executive power of the law of nature. Since the state is nothing but the joint power of all the members of society, its authority "can be no more than those persons had in a state of nature before they entered into society, and gave it up to the community." All powers not expressly surrendered are reserved to the people themselves. If the government exceeds or abuses the authority explicitly granted in the political contract, it becomes tyrannical; and the people then have the right to dissolve it or to rebel against it and overthrow it.

Locke's condemnation of absolutism

Locke condemned absolutism in every form. He denounced despotic monarchy, but he was no less severe in his strictures against the absolute sovereignty of parliaments. Though he defended the supremacy of the law-making branch, with the executive primarily an agent of the legislature, he nevertheless refused to concede to the representatives of the people an unlimited power. Arguing that government was instituted among men for the preservation of property (which he generally defined in the inclusive sense of life, liberty, and estate), he denied the authority of any political agency to invade the natural rights of a single individual. The law of nature, which embodies these rights, is an automatic limitation upon every branch of the government. Regardless of how large a majority of the people's representatives should demand the restriction of freedom of speech or the confiscation and redistribution of property, no such action could legally be taken. If taken illegally it would justify effective measures of resistance on the part of the majority of citizens. Locke was much more concerned with protecting individ-

ual liberty than he was with promoting stability or social progress. If forced to make a choice, he would have preferred the evils of anarchy to those of despotism in any form.

The influence of few political philosophers in the history of the world has exceeded that of Locke. Not only were his doctrines of natural rights, limited government, and the right of resistance against tyranny an important source of French Revolutionary theory, but they found ready acceptance in American thought as well. They furnished most of the theoretical foundation for the colonial revolt against British oppression. They were reflected so clearly in the Declaration of Independence that whole passages of that document might almost have been copied from the *Second Treatise of Civil Government*. Lockian principles also influenced the drafting of the Constitution and especially the arguments advanced by Hamilton, Madison, and Jay in the *Federalist* urging its ratification. Later, when the new government enacted the Alien and Sedition laws, it was mainly on the basis of Lockian theory that Madison and Jefferson in the Virginia and Kentucky Resolutions appealed to the several States to resist the usurpation of power.

Locke's influence

In France the foremost exponents of the liberal political theory were Voltaire (1694–1778) and Baron de Montesquieu (1689–1755). As was indicated earlier, Voltaire considered orthodox Christianity to be the worst of the enemies of mankind, but he reserved plenty of contempt for tyrannical government. During his exile in England he had studied the writings of Locke and had been deeply impressed by their vigorous assertions of individual freedom. Returning to France while still a comparatively young man, he devoted a large part of the remainder of his life to the fight for intellectual, religious, and political liberty. In common with Locke he conceived of government as a necessary evil, with powers which ought to be limited to the enforcement of natural rights. He maintained that all men are endowed by nature with equal rights to liberty, property, and the protection of the laws. But Voltaire was no democrat. He was inclined to think of the ideal form of government as either an enlightened monarchy or a republic dominated by the middle class. To the end of his life he continued to be more than a little afraid of the masses. He was even fearful that his attacks upon organized religion might serve to incite the multitude to deeds of violence. It is related that after he had been robbed by some peasants, he attended church for a season in order to persuade the country bumpkins that he still believed in God.

The liberal political theory of Voltaire

A more profound and systematic political thinker than Voltaire was his older contemporary, Baron de Montesquieu. Though, like Voltaire, a student of Locke and an ardent admirer of British institutions, Montesquieu was a unique figure among the political philosophers of the eighteenth century. In his celebrated *Spirit of Laws* he brought new methods and new conceptions into the theory

The influence of Montesquieu

of the state. Instead of attempting to found a science of government by pure deduction, he followed the Aristotelian method of studying actual political systems as they were supposed to have operated in the past. He tended to ignore the Lockian ideas of natural rights and the contractual origin of the state and taught that the meaning of the law of nature is to be found in the facts of history. Moreover, he denied that there is any one perfect form of government suitable for all peoples under all conditions. He maintained, on the contrary, that political institutions in order to be successful must harmonize with the physical conditions and the level of social advancement of the nations they are intended to serve. Thus he declared that despotism is best suited to countries of vast domain; limited monarchy to those of moderate size; and republican government to those of small extent. For his own country, France, he was disposed to think that a limited monarchy would be the most appropriate form, since he regarded the nation as too large to be made into a republic unless on some kind of federal plan.

The separation of powers and checks and balances

Montesquieu is especially famous for his theory of the separation of powers. He avowed that it is a natural tendency of man to abuse any extent of power entrusted to him, and that consequently every government, regardless of its form, is liable to degenerate into despotism. To prevent such a result he argued that the authority of government should be broken up into its three natural divisions of legislative, executive, and judicial. Whenever any two or more of these are allowed to remain united in the same hands, liberty, he declared, is at an end. The only effective way to avoid tyranny is to enable each branch of the government to act as a check upon the other two. For example, the executive should have the power by means of the veto to curb the encroachments of the lawmaking branch. The legislature, in turn, should have the authority of impeachment in order to restrain the executive. And, finally, there should be an independent judiciary vested with power to protect individual rights against arbitrary acts of either the legislature or the executive. This favorite scheme of Montesquieu was not intended, of course, to facilitate democracy. In fact, its purpose was largely the opposite: to prevent the absolute supremacy of the majority, expressed as it normally would be through the people's representatives in the legislature. It was a typical illustration of that strong dislike which the bourgeoisie had come to have for despotic government in any form, whether of the few or of the many. Montesquieu's principle of the separation of powers was none the less influential. It was incorporated in the first of the governments set up during the French Revolution, and it found its way with very few changes indeed into the Constitution of the United States.

The democratic political theory

The second of the great political ideals which occupied an important place in the intellectual background of the French Revolution was the ideal of democracy. In contrast with liberalism, de-

mocracy was and still is much less concerned with the defense of individual rights than with the enforcement of popular rule. As a matter of fact, in its original, historic meaning, democracy is inseparable from the idea of the sovereignty of the masses. What the majority of the citizens wills is the supreme law of the land, for the voice of the people is the voice of God. It is generally assumed that under democracy the minority will continue to enjoy full liberty of expression, but this assumption does not necessarily hold. The only sovereign right of the minority is the right to become the majority. As long as a particular group remains a minority, its members cannot claim any rights of individual action beyond the control of the state. Many exponents of democracy in the present generation would deny that this statement is true and would stoutly maintain their devotion to freedom of speech and freedom of the press as rights which the government cannot legally infringe. But this attitude springs from the fact that the current ideal is generally combined with liberalism. Indeed, democracy and liberalism have now come to be used as if they were identical in meaning. Originally, however, they were entirely separate ideals. Historic democracy also included a belief in the natural equality of all men, opposition to hereditary privilege, and an abiding faith in the wisdom and virtue of the masses.

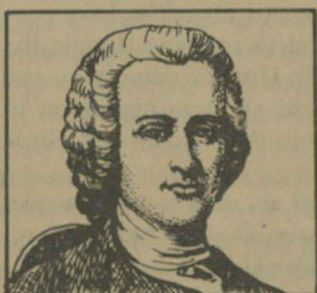
Rousseau, the founder of democracy

The founder of democracy as described above was Jean Jacques Rousseau (1712–1778). Since Rousseau was also the father of romanticism, we can expect that sentiment should have deeply colored his political judgments. Consistency, moreover, was not always a crowning virtue of his reasoning. The most significant of his writings on political theory were his *Social Contract* and his *Discourse on the Origin of Inequality*. In both of these he upheld the popular thesis that men had originally lived in a state of nature. But in contrast with Locke he regarded this state of nature as a veritable paradise. No one suffered inconvenience from maintaining his own rights against others. Indeed, there were very few chances of conflict of any sort; for private property did not exist for a long time, and every man was the equal of his neighbor. Eventually, however, evils arose, due primarily to the fact that some men staked off plots of land and said to themselves, "This is mine." It was in such manner that various degrees of inequality developed; and, as a consequence, "cheating trickery," "insolent pomp," and "insatiable ambition" soon came to dominate the relations among men. The only hope of security was now for men to establish a civil society and to surrender all of their rights to the community. This they did by means of a social contract, in which each individual agreed with the whole body of individuals to submit to the will of the majority. Thus the state was brought into existence.

Rousseau developed an altogether different conception of sovereignty from that of the liberals. Whereas Locke and his followers

Rousseau's conception of sovereignty

had taught that only a portion of sovereign power is surrendered to the state, the rest being retained by the people themselves, Rousseau contended that sovereignty is indivisible, and that all of it became vested in the community when civil society was formed. He insisted further that each individual in becoming a party to the social contract gave up all of his rights to the people collectively and agreed to submit absolutely to the general will. It follows that the sovereign power of the state is subject to no limitations whatever. The general will, expressed through the vote of the majority, is the court of final appeal. What the majority decides is always right in the political sense and is absolutely binding upon every citizen. The state, which in actual practice means the majority, is legally omnipotent. But this does not really imply, according to Rousseau, that the liberty of the individual is entirely destroyed. On the contrary, subjection to the state has the effect of enhancing *genuine* liberty. Individuals in surrendering their rights to the community merely exchange the animal liberty of the state of nature for the true freedom of reasoning creatures in obedience to law. Compelling an individual to abide by the general will is therefore merely "forcing him to be free." It must be understood, also, that when Rousseau referred to the state he did not mean the government. He regarded the state as the politically organized community, which has the sovereign function of expressing the general will. The authority of the state cannot be represented, but must be expressed directly through the enactment of fundamental laws by the people themselves. The government, on the other hand, is simply the executive agent of the state. Its function is not to formulate the general will but merely to carry it out. Moreover, the community can set the government up or pull it down "whenever it likes."



Jean-Jacques Rousseau, from a painting by Maurice LaFour (1704–1788).

The influence of Rousseau's political theory would be hard to exaggerate. His dogmas of equality and the supremacy of the majority were the chief inspiration for the second stage of the French Revolu-

tion. Doctrinaire radicals like Robespierre were among his most fervent disciples. But Rousseau's influence was not confined to his own country. Some of his theories made their way to America and found an echo in certain of the principles of Jacksonian Democracy —although, of course, it is extremely improbable that many of Jackson's followers had ever heard of Rousseau. The German Romantic Idealists, who, in the early nineteenth century, glorified the state as "God in history," would also appear to have been indebted in some measure to the philosophy of *The Social Contract*. From Rousseau's doctrines that the state is legally omnipotent, and that true liberty consists in submission to the general will, it was not a very difficult step to exalting the state as an object of worship and reducing the individual to a mere cog in the political machine. Even though Rousseau suggested that the majority would be limited by moral restraints and insisted upon the right of the people to "pull down" their government, these limitations were not enough to counteract the effect of his stress upon absolute sovereignty.

The influence of Rousseau

As a final intellectual cause of the French Revolution, the influence of the new economic theory must be given at least passing attention. In the second half of the eighteenth century a number of brilliant writers began attacking the traditional assumptions in regard to public control over production and trade. Their special target of criticism was mercantilist policy. To a large extent the new economics was founded upon the basic conceptions of the Enlightenment, particularly the idea of a mechanistic universe governed by inflexible laws. The notion now came to prevail that the sphere of the production and distribution of wealth was subject to laws just as irresistible as those of physics and astronomy. The new economic theory may also be regarded as the counterpart of political liberalism. The cardinal aims of the two were quite similar: to reduce the powers of government to the lowest minimum consistent with safety and to preserve for the individual the largest possible measure of freedom in the pursuit of his own devices.

The influence of the new economic theory

The first of the leading champions of a revised attitude toward economic problems were members of a group known as the Physiocrats. The most eminent among them were François Quesnay (1694–1774), author of the *Tableau Économique*, the bible of Physiocracy; Dupont de Nemours (1739–1817), ancestor of the Dupont family in the United States; and Robert Jacques Turgot (1727–1781), finance minister for a brief period under Louis XVI. From the outset the Physiocrats condemned mercantilist doctrine. One of their chief aims was to prove that the *natural* enterprises of agriculture, mining, and fishing are more important to national prosperity than commerce. Nature, they held, is the real producer of wealth, and therefore those industries which actually exploit the resources of nature and make them yield things of value to man are most to be prized. Trade is essentially sterile, since it merely transfers goods

The doctrines of the Physiocrats

already in existence from one person to another. As time went on, these doctrines were subordinated to another idea which the Physiocrats came to regard as paramount to everything else. This was the liberation of economic activity from the suffocating restraints imposed by the state. The Physiocrats demanded that the government should refrain from all interference with business except in so far as might be necessary for the protection of life and property. Nothing should ever be done to hinder the operation of natural economic laws. This doctrine was neatly summed up in the picturesque maxim, *Laissez faire et laissez passer, le monde va de lui-même* (Let do and let alone, the world goes on of itself). The ideal of *laissez faire* soon came to embody such notions as the sanctity of private property and the rights of freedom of contract and free competition. It was thus the very antithesis of the restrictive policy of mercantilism.

The economics of Adam Smith

The greatest of all the economists of the age of the Enlightenment and one of the most brilliant of all time was Adam Smith (1723–1790). A native of Scotland, Smith began his career as a lecturer on English literature at the University of Edinburgh. From this he was soon advanced to a professorship of logic at Glasgow College. He first won fame in 1759 with the publication of his *Theory of Moral Sentiments.* Although he had been interested for some time in problems of political economy, this interest was effectively stimulated by two years of residence in France while serving as tutor to the young Duke of Buccleuch. Here he became acquainted with the leading members of the Physiocratic school and was delighted to find that some of their theories agreed with his own. He described the economics of Quesnay, "with all its imperfections," as "the nearest approximation to truth that has yet been published on the principles of that science." But Smith never enlisted under the standard of the Physiocrats, despite the undoubted influence of many of their doctrines upon him. In 1776 he published his *Inquiry into the Nature and Causes of the Wealth of Nations,* generally considered the most influential treatise on economics ever written. In this work he maintained that labor, rather than agriculture or the bounty of nature, is the real source of wealth. While in general he accepted the principle of *laissez faire,* avowing that the prosperity of all can best be promoted by allowing each individual to pursue his own interest, he nevertheless recognized that certain forms of governmental interference would be desirable. The state should intervene for the prevention of injustice and oppression, for the advancement of education and the protection of public health, and for the maintenance of necessary enterprises which would never be established by private capital. Notwithstanding these rather broad limitations upon the principle of *laissez faire,* Smith's *Wealth of Nations* was adopted as Holy Writ by the economic individualists of the eighteenth and nineteenth centuries. Its

influence in causing the French Revolution was indirect but none the less profound. It furnished the final answer to mercantilist argument and thereby strengthened the ambition of the bourgeoisie to have done with a political system which continued to block the path to economic freedom.

CHAPTER 18 The Age of Romanticism and Reaction (1800-1830)

1. The Triumph of Conservatism in the Realm of Ideas

The ascendancy of the conservative attitude

Just as there was a struggle in the years from 1800 to 1830 between liberals and conservatives in the political sphere, so there was a similar clash in the realm of ideas. And the outcome of this second struggle was not so far different from that of the first. In general, throughout the period, the doctrines of intellectual conservatives enjoyed the supremacy. Order was exalted above liberty. The interests of groups, of society, and especially of the state were given precedence over those of the individual. An emphasis upon faith, authority, and tradition superseded the eighteenth-century belief in the primacy of reason and science. A group of French philosophers under the leadership of Joseph de Maistre (1754–1821) sought to inaugurate a Catholic revival in which mystical piety, supernaturalism, and the belief in an infallible church would serve as the lamps to guide men's feet from the pitfalls of skepticism and anarchy. For this ascendancy of conservative patterns of thought various factors were responsible. There was first of all the influence of romanticism, founded by Rousseau, with its denial of the competence of reason and its stress upon emotions and feelings. There was also the tendency, common in all ages, of many writers and thinkers to take their cue from the dominant political trend, which in this period, of course, was conservative. But probably the major factor, in the beginning at least, was the strong revulsion of feeling which had set in against the horrors of the French Revolution. All who had been frightened by the violence of that movement were inclined to blame it on the rationalism, materialism, and individualism of the age of the Enlightenment. Hence they were disposed to swing to the opposite extreme of glorifying faith, authority, and tradition. Such in particular was the attitude expressed by Edmund Burke, the renowned British orator and Whig statesman of the late eighteenth century. Although he did not live to see the end of the French Revolution, Burke de-

Edmund Burke

THE AGE OF DEMOCRACY

	Western Europe	Central and Eastern Europe
	First Industrial Revolution, 1760–1860	
	Classical economics, 1776–1880	
	Utilitarianism, 1790–1870	
1800—	Romanticism in literature and arts, 1800–1900	F. Schubert, 1797–1828
	Victor Hugo, 1802–1885	
	First Empire in France, 1804–1814	
		Richard Wagner, 1813–1883
	Battle of Waterloo, 1815	Congress of Vienna, 1814–1815
		Carlsbad Decrees, 1819
		F. Dostoievski, 1821–1881
1825—	First railroad, 1825	
	Henrik Ibsen, 1828–1906	
	July Revolution in France, 1830	Leo Tolstoi, 1828–1910
	Realism in literature and arts, 1830–1914	Independence of Greece, 1829
	Independence of Belgium, 1831	
	First Reform Act, 1832	Unification of Germany, 1833–1871
	Chartist movement, 1838–1848	
	Emile Zola, 1840–1904	Tchaikovsky, 1840–1893
	Repeal of Corn Laws, 1846	Law of conservation of energy, 1847
	February Revolution in France, 1848	*Communist Manifesto*, 1848
1850—	Second Republic in France, 1848–1852	Unification of Italy, 1848–1870
	Second Empire in France, 1852–1870	Crimean War, 1854–1856
	Charles Darwin, *Origin of Species*, 1859	
	J. S. Mill, *On Liberty*, 1859	
	Second Industrial Revolution, 1860–	Emancipation of serfs in Russia, 1861
	Second Reform Act, 1867	Austro-Prussian War, 1866
		Ausgleich establishes Dual Monarchy, 1867
	Franco-Prussian War, 1870–1871	Law of Papal Guaranties, 1871
	Impressionism, 1870–1890	German Empire, 1871–1918
	Paris Commune, 1871	
	Development of dynamo, 1873	*Kulturkampf*, 1872–1886
1875—	Germ theory of disease, 1875	
	Third Republic in France, 1875–1940	Internal-combustion engine, 1876
		Russo-Turkish War, 1877–1878
		Congress of Berlin, 1878
		Triple Alliance, 1882–1914
	Third Reform Act, 1884	
	Post-impressionism, 1890–	Berlin-to-Bagdad Railway, 1890–1907
	Dreyfus affair, 1894–1905	Ivan Pavlov discovers conditioned reflex, *ca.* 1895
	Discovery of x-ray, 1895	
		Diesel engine, 1897
	Boer War, 1899–1902	Wireless telegraph, 1899
1900—	First Hague Conference, 1899	
	Mutation theory, 1901	
	Cubism, 1903	

AND NATIONALISM *(1800–1914)*

The Americas	India, the Middle and Far East
	Manchu Dynasty in China, 1644–1912
Invention of cotton gin, 1793	
Jeffersonian Revolution, 1800	
Louisiana Purchase, 1803	
Latin American wars for independence, 1808–1826	
War of 1812	
Argentine independence, 1816	
Independence of Brazil, 1822	
Independence of Mexico, 1822	
Monroe Doctrine, 1823	
Jacksonian Revolution, 1828–1837	
Mechanization of agriculture, 1835–	
Use of ether as an anesthetic, 1842	Anglo-Chinese War (Opium War), 1839–1842
First telegraph line, 1844	
	T'ai-p'ing Rebellion, 1851–1864
	Opening of Japan, 1854
Dred Scott Decision, 1857	Great Mutiny in India, 1857–1858
	British Crown assumes rule in India, 1858
First oil well, 1859	
American War between the States, 1861–1865	
Emancipation Proclamation, 1862	
Empire of Maximilian in Mexico, 1862–1867	
British North America Act, 1867	Sun Yat-sen, 1866–1925
	Meiji Restoration, 1867
	End of Shogunate in Japan, 1867
	Mahatma Gandhi, 1869–1948
	End of feudalism in Japan, 1871
Invention of telephone, 1876	
Incandescent-filament lamp, 1879	
	Organization of Indian National Congress, 1885
	Adoption of Constitution in Japan, 1889
Republic of Brazil, 1889	Jawaharlal Nehru, 1889–
Beginning of finance capitalism, 1890	
Populist movement in U.S., 1890–1900	Sino-Japanese War, 1894–1895
William James, *The Will to Believe*, 1897	
Spanish-American War, 1898	Open-door policy in China, 1899
Progressive movement in U.S., 1900–1916	Boxer Rebellion, 1900
First airplane flight (Wright brothers), 1903	

Western Europe	Central and Eastern Europe
Entente Cordiale, 1904	Russo-Japanese War, 1904-1905
Separation of Church and State in France, 1905	Founding of psychoanalysis, *ca.* 1905
	Russian Revolution of 1905
	Einstein theories, 1905-1910
Second Hague Conference, 1907	Young Turk Revolution, 1908
Triple Entente, 1907	Bosnian Crisis, 1908
Discovery of protons and electrons, *ca.* 1910	
Parliament Act of 1911	Balkan Wars, 1912-1913

nounced that movement with all the fiery eloquence he could command. To him the Revolution was an attempt to repudiate the accumulated wisdom of the ages. This world, he averred, cannot be made over in a single night. No one generation has the right to set itself up as the judge of society's future needs. The institutions and traditions which have come down to us from the past have an enduring value. To lay violent hands upon them is to threaten the vital elements of civilization itself.

Romantic Idealism

The body of thought which stands as the most perfect expression of the age of reaction was the German philosophy of Romantic Idealism. This philosophy derives its name from the fact that it was a combination of the romanticist theory of truth with the idealist conception of the universe. That is, it was neither rationalistic nor materialistic in the strict meaning of those terms. Instead it recognized the validity of intuitive or instinctive knowledge in addition to that which comes from reason, and it sought to explain the universe in a sense at least partly spiritual. The Romantic Idealists also deviated sharply from the individualism and humanism of eighteenth-century philosophy. They regarded the individual as totally devoid of significance except in so far as he was a member of some social group. Therefore, they argued, the welfare of the group must come first, and that of the individual will automatically follow. Society and the state are social organisms, products of a *natural* evolution, and not the artificial creations of man himself for his own convenience. No such thing as a state of nature ever existed, nor was political society founded by a social compact. Consequently the individual cannot claim any inviolable sphere of rights beyond the jurisdiction of organized society. His duty is rather to submerge his own interests in those of the group and thereby gain the true liberty which consists in obedience to law and in respect for accumulated tradition.

The philosopher who provided the original inspiration for Roman-

The Americas	India, the Middle and Far East
Roosevelt Corollary to Monroe Doctrine, 1904	Russo-Japanese War, 1904-1905
Model T Ford, 1908	Young Turk Revolution, 1908
Madero Revolution in Mexico, 1911	Revolution in China, 1911

tic Idealism was a methodical little German who lived most of his life in the eighteenth century. His name was Immanuel Kant, and he was born in Königsberg in 1724; there he died in 1804 without once having left his native city, except for a brief period of tutoring in a neighboring village. Devoting most of his life to teaching, he matured his philosophic ideas very slowly. When well along toward middle age he could still refer with scorn to the metaphysicians as those who dwelt on the high towers of abstruse cogitation, "where there is usually a great deal of wind." Not until he was fifty-seven years old did he finish his first great work, the *Critique of Pure Reason*. As a philosopher, Kant owed considerable to the great minds of the Enlightenment. They contributed particularly to his political ideas. Unlike most of his followers, he believed in the natural rights of man and even defended the separation of powers as a necessary protection for the liberty of the citizen. But in the field of general philosophy Kant departed widely from the rationalism of the eighteenth century. He divided the entire universe into two worlds: one, the realm of physical nature, or the world of *phenomena;* and the other, the realm of ultimate reality, or the world of *noumena*. The methods of knowing applicable to these realms are entirely different. Sense perception and reason can give us knowledge only of the realm of *phenomena*, of the world of physical things. But in the higher realm of the spiritual, which is the world of ultimate reality, such methods are of no avail. Since all ordinary knowledge rests in final analysis upon sense perception, we cannot prove by reason or science that God exists, that the human will is free, or that the soul is immortal. Nevertheless, we are justified in assuming that these things are true. For example, we have an irresistible conviction that virtue and happiness are inseparably linked, that the universe is governed by moral law, and that therefore a divine being must preside over the destinies of men. Such a conclusion is altogether outside the jurisdiction of

Romantic Idealism founded by Immanuel Kant

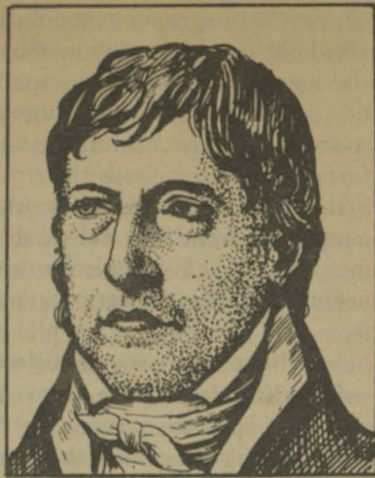
science, but it is dictated by feelings entirely too strong to be dismissed as mere illusions. And in the realm of *noumena*, faith, intuition, and deep conviction are just as valid instruments of knowledge as logic and science in the realm of *phenomena*.

Other Romantic Idealist philosophers: Fichte

The immediate disciples of Kant generally inclined toward a more abstract and metaphysical philosophy than that of their master. Such was notably the case of Johann Gottlieb Fichte (1762–1814). Fichte and his associates taught that the world of mind or spirit is the real world, and that the individual realizes his true nature only by bringing himself into harmony with the universal purpose. The human mind can know nothing of reality except in so far as it is informed and guided by the supreme ego or universal intelligence. It is the duty of the individual to allow intuition to discover the demands of this superego, to adjust his own life to them, and thereby to free himself from the slavery of sense. The philosophy of Fichte evolved into a kind of spiritual pantheism with a world-spirit directing all life and activity toward a final goal of sublime perfection. Fichte is also of more than trivial importance as a political philosopher. He was one of the earliest apostles of collectivistic nationalism in Germany. During the years of the Napoleonic invasions he proclaimed to his countrymen the ideal of a united and powerful Germany with a mission to assume the leadership of the civilized world. He taught that this state should rule with an eye single to justice and prosperity for all its subjects. It should therefore regulate prices and insure to each individual his proportionate share of the national wealth. Moreover, the state should be a self-contained economic unit; foreign trade should be reduced to an absolute minimum, and when essential it should be carried on through the government itself. It is hardly necessary to stress the close similarity between some of these ideas and policies adopted by the German nation in the time of Hitler.

Hegel

Undoubtedly the most influential philosopher of the Romantic Idealist movement was Georg Wilhelm Hegel (1770–1831). Professor of philosophy for a considerable period at the University of Berlin, Hegel won a great number of adherents, and through them exerted a potent force in shaping intellectual currents for many years. The central doctrine of Hegel's philosophy is the idea of purposive evolution. He regarded the universe as in a condition of flux, with everything tending to pass over into its opposite. In particular, each institution or social or political organism grows to maturity, fulfills its mission, and then gives way to something different. But the old itself is never entirely destroyed; the clash of opposites results eventually in a fusion, in the creation of a new organism made up of elements taken from the two opposites themselves. Then the process is repeated over and over again with each new stage representing an improvement over that which has gone before. But Hegel's conception of evolution was not mechanistic. He believed the whole process



Georg Wilhelm Friedrich Hegel (1770–1831).

to be guided by the universal reason or God. Evolution, he maintained, is the unfoldment of God in history. Further, he argued that the war of opposites would ultimately lead to a beneficent goal. This goal he described as the perfect state, in which the interests of every citizen would be perfectly blended with the interests of society. As a matter of fact, Hegel worshiped the state in a much more ecstatic fashion than did any of the other Romantic Idealists. He held that true liberty consists in subjection to political society, and that the individual has no rights which the state is bound to respect; for without the state the individual would be nothing but an animal. "The State is the Divine Idea as it exists on earth."[1]

The influence of Romantic Idealism

Romantic Idealism cast its influence in many directions. In one or another of its forms it was adopted as the principal gospel of nearly all in the conservative camp. Churchmen who had been disturbed by the attacks of deists and skeptics were delighted to find a philosophy that recognized the merits of faith and exalted the world of spirit. People with a stake in the maintenance of order rejoiced in the new worship of tradition and authority and in the implied condemnation of revolution. Especially pleasing to the ruling class were the political teachings of Hegel, who enjoyed such prestige at the Prussian court that his enemies called him "the official philosopher." The doctrines of Hegel and Fichte alike strengthened the rising tide of nationalism and ultimately contributed their quota to the devastating flood of fascism.[2] But Romantic Idealism also bore certain other fruits not exactly to the liking of its principal exponents. One

[1] Hegel, *Philosophy of History* (J. Sibree, trans.), p. 87.
[2] Hegelian ideas influenced the growth of fascism not only in Germany but also in Italy. See H. W. Schneider, *Making the Fascist State*, pp. 20–24.

of their younger contemporaries, Arthur Schopenhauer (1788–1860), developed the notion of a universal force, directing all growth and movement, into a philosophy of stark pessimism. He taught that this force is *will*—a blind, unconscious craving of individuals and species to survive. Since the will to live is present in all animate forms, and since it leads the strong to devour the weak, this world is the worst of all possible worlds. Selfishness, pain, and misery are inseparable from life, and therefore the only road to happiness for man consists in as complete a denial of life as possible after the manner of an Oriental ascetic. Still another of the strange offshoots of Romantic Idealism was the philosophy of history of Karl Marx. For his celebrated doctrine of dialectical materialism, Marx was heavily indebted to Hegel. Both believed in a progressive evolution through a clash of opposing systems, resulting finally in a perfect society. But whereas Hegel assumed that the ultimate goal would be a perfect state, Marx argued that it would be communism. The two men differed also in their conception of the dialectical process—that is, of the war of opposites. Hegel interpreted historical evolution as the unfoldment of the world-spirit or universal reason; Marx contended that historical change is the result of economic factors. It was the proud boast of the great socialist leader that he turned Hegel right side up.

Utilitarianism, founded by Jeremy Bentham

Romantic Idealism was most popular in Germany. In other countries, especially in England and France, where the influence of the Enlightenment had taken deeper root, philosophy was generally more liberal in tone. The leading system of thought in England in the early nineteenth century was Utilitarianism, founded by Jeremy Bentham (1748–1832). Despite a frail and nervous physique, Bentham displayed prodigious intellectual talent throughout the greater part of his long life. He began the study of Latin when he was only three years old and was graduated from Oxford at the age of fifteen. When he was nearly seventy he was still propounding schemes for prison reform and for cutting canals across the Isthmus of Panama and the Isthmus of Suez. His chief philosophical work, the *Principles of Morals and Legislation*, was published in 1789. Bentham's Utilitarianism derives its name from his cardinal teaching that the supreme test to which every belief and institution should be made to conform is the test of utility or usefulness. This test he defined as contributing to the greatest happiness of the greatest number. Any doctrine or practice which fails to meet this requirement should be rejected forthwith, regardless of how much hoary tradition may stand behind it. Despite its social connotations, Bentham's ideal was the acme of individualism. Not only did he maintain that the interest of the community is simply the sum of the interests of the several members who compose it, but he was quite frank in admitting that the motives of individuals are purely selfish. The mainspring of human action is the desire to secure pleasure and to avoid pain. Therefore

society should leave to each of its members complete freedom to follow his own enlightened self-interest. Since every individual knows better than anyone else what constitutes his own good, the welfare of society can best be promoted by allowing to each of its members the maximum liberty of action. Bentham was firmly convinced that granting this concession would not mean a reversion to the ways of the jungle. He insisted that every man would be obliged to respect his neighbor's rights through fear of retaliation; that men would obey the laws for the simple reason that the "probable mischiefs of obedience are less than the probable mischiefs of disobedience."[1]

John Stuart Mill

Bentham's most faithful disciple was James Mill (1773–1836), but the greatest of all the Utilitarian philosophers was James Mill's oldest son, John Stuart Mill (1806–1873). Educated exclusively by his father, John Stuart Mill surpassed even Bentham as an intellectual prodigy. He learned the Greek alphabet at the age of three, and by the time he was eight had read all of Herodotus and a considerable portion of Plato in the original. When scarcely thirteen he had completed a rigorous course of training in history, Scholastic logic, and Aristotelian philosophy. His greatest works are his *Logic*, his *Principles of Political Economy*, his essay *On Liberty*, and his *Representative Government*. As a philosopher, John Stuart Mill summed up nearly all of the major tendencies in English thought initiated by Locke, Hume, and Bentham. That is, he was a sensationalist, a skeptic in regard to final truth, and a champion of the liberal and practical point of view. But he was also an original and independent thinker and made a number of distinct contributions of his own. He founded a new system of logic, based upon experience as the original ground of all knowledge. All of the so-called self-evident truths, even the axioms of mathematics, he argued, are simply inferences derived from the observed facts that nature is uniform and that every effect has a cause. Knowledge comes neither from inborn ideas nor from mystic intuition. Though Mill agreed with the general purport of Bentham's teachings, he rejected the doctrine that the pursuit of pleasure and the avoidance of pain are the sole determinants of human conduct (the "pig philosophy," as Thomas Carlyle once called it). According to Mill the conduct of individuals is often influenced by mere habit and by the desire for unity with their fellow beings. Further, he maintained that pleasures themselves differ in quality, arguing that it is better to be "Socrates dissatisfied than a fool satisfied." In his later years Mill also modified much of Bentham's individualism. While repudiating socialism on the ground that it would involve the destruction of personal liberty, he nevertheless advocated a considerable degree of intervention by the state for the benefit of its less fortunate members. He looked forward to a time "when society will no longer be divided into the idle and

[1] W. A. Dunning, *History of Political Theories*, Vol. III, p. 216.

the industrious; when the rule that they who do not work shall not eat, will be applied not to paupers only, but impartially to all. . . ."[1]

Positivism

The nearest approach to a liberal and practical philosophy on the Continent of Europe was the Positivism of Auguste Comte (1798–1857). Positivism takes it name from Comte's doctrine that the only knowledge of any value is *positive* knowledge, or knowledge which comes from the sciences. Comte's philosophy may therefore be placed, along with Utilitarianism, in the classification of *empirical* philosophies, which includes those deriving all truth from experience or from observation of the physical world. Comte rejected metaphysics as utterly futile; no man can discover the hidden essences of things—why events happen as they do, or what is the ultimate meaning and goal of existence. All that we know is how things happen, the laws which control their occurrence, and the relations existing between them. Such knowledge may not answer all the questions that pique our curiosity, but it is the limit of which the human mind is capable. Moreover, it is useful and practical knowledge, which can be employed for the betterment of humanity. If there was any one purpose pre-eminent over others in Comte's philosophy, it was to devise means for improving relations among men. He did not agree with Bentham that the actions of individuals are motivated exclusively by self-interest. He avowed, on the contrary, that men are influenced by nobler impulses of *altruism*, or feelings for others, as well as by instincts of selfishness. The great object of all social teaching should be to promote the supremacy of altruism (a word invented by Comte) over egoism. Believing that this purpose could be achieved only through an appeal to the emotions of love and self-sacrifice, Comte developed what he called the Religion of Humanity, which was supposed to bring men together in a common devotion to justice, charity, and benevolence. Although this religion included no belief in the supernatural, it was provided with an extensive ritual and even with a Trinity and a priesthood. Ridiculed by its critics as "Catholicism minus Christianity," it nevertheless represented an attempt to build a system of belief dedicated to the aim of social progress.

2. *Romanticism in Literature and the Arts*

The nature of the romantic revolt

In the chapter on the Intellectual Revolution it was observed that toward the end of the eighteenth century a romantic revolt set in against the dominant classical tendencies in literature. The essence of romanticism was the glorification of the instincts and emotions as opposed to a worship of the intellect. Included in it also were such elements as a deep veneration for nature, a contempt for formalism, a sentimental love for humble folk, and often a flaming zeal to remake the world. Among the leaders of the new movement in its

[1] J. S. Mill, *Autobiography* (Uniform Library ed.), p. 231.

infancy were Rousseau, Thomas Gray, Oliver Goldsmith, Robert Burns, and Friedrich Schiller. After the beginning of the nineteenth century romanticism flourished apace, attaining the zenith of its growth about 1830. No longer was it confined to literature, but, as we shall presently see, it was a vital force in painting and to a considerable extent also in music. Though it still had to compete in some fields with classicism, especially in France during the era of Napoleon, it was by far the most vigorous literary and artistic influence in the first three decades of the nineteenth century.

Romanticism in English literature: Wordsworth and Coleridge

Romanticism in literature had its deepest and longest roots in England. Its two great prophets at the beginning of the nineteenth century were the poets William Wordsworth (1770–1850) and Samuel Taylor Coleridge (1772–1834). Wordsworth is noted for his mystical adoration of nature, not alone in its mere surface beauties but especially as the embodiment of a universal spirit which unites all living things in a kinship of divinity. He believed that a sensuous worship of nature would bring man to a deeper awareness of the nobility of life, that it would enable him to hear "the still sad music of humanity" and thereby increase his love and compassion for his fellow creatures. The special gift of Coleridge was an ability to make the weird and fantastic credible. Though he sometimes wandered into the dense jungles of metaphysics, he succeeded in the magic stanzas of *The Ancient Mariner* in producing some of the most colorful imaginative writing in the English language. This work reveals his unusual power of combining tender, almost womanly sentiment with witching descriptions of strange, supernatural terrors, of phantoms and specters that rise out of the murky depths of the emotions to torment man with a sense of his helplessness.

Keats, Shelley, and Byron

Perhaps the most typical of the English romantic poets were John Keats (1795–1821), Percy Bysshe Shelley (1792–1822), and George Gordon, Lord Byron (1788–1824). Keats differed from most of his contemporaries in identifying beauty with intellectual passion in somewhat the same way as the Greeks identified the beautiful with the good. The substance of his creed is expressed in the well-known lines from the *Ode on a Grecian Urn:* "Beauty is truth, truth beauty,—that is all ye know on earth, and all ye need to know." His conception was one of ideal beauty, which endures independently of the fading of the flower or the passing of the loveliness of youth. The other two short-lived poets of the English romantic circle were much more interested in political and social questions. In spite of their upper-class origins, both were rebels against stubborn conservatism and employed their talents in passionate appeals for justice and freedom. Shelley was expelled from Oxford on a charge of atheism and then for some years was a disciple of William Godwin, the philosophical anarchist. Though he eventually modified some of his youthful radicalism and allowed his thoughts to wander more and more into vaporous abstractions, he never relinquished his hatred

of injustice or his hopes for a golden dawn of happiness and freedom. Lord Byron, who inherited the title of baron at the age of ten, was even more than Shelley a poet of stormy defiance, of romantic daring, and of sardonic laughter at the hypocrisy and arrogance of the human race. Not only in the qualities of his proud personality, but also in the scandals which enveloped his career and in the directness and audacity of his poetic style he typified for the age the spirit of romantic man. His death while aiding the Greeks in their war for independence was a fitting climax to his brief, adventurous life.

Sir Walter Scott

Not all of the romantic writers in Great Britain confined their efforts to poetry. The most noted of those who achieved an enduring reputation in both poetry and prose was the learned but none too subtle Tory, Sir Walter Scott (1771–1832). Nurtured on family pride from his early life and fascinated by the rich legends of his ancestral heritage, Scott never succumbed to the rebellious tendencies which frequently characterized the romantic tradition. So far as political ideals were concerned, he accepted things as they were and even gloried in the advantages of wealth and social position. His interest as a writer was distinctly antiquarian. Both in his poetry and in his prose he sought to revive the heroic and picturesque legends of his Scottish background. His thirty-two Waverly novels deal mainly with the history of medieval Scotland, in an age as remote as the twelfth century The chief historical importance of Sir Walter Scott consists in the fact that he introduced a new element into literary romanticism—that of worshipful reverence for the past. His novels, which were undoubtedly the most popular and influential fiction of the early nineteenth century, served to cast a glamour upon the Middle Ages, to rescue that epoch from the scorn with which it had been treated as a consequence of the classical prejudices of the Enlightenment.

Romanticism in Germany: Heinrich Heine

Except for the dramas of Schiller and Goethe, discussed in a preceding chapter,[1] romantic literature in Continental countries is scarcely to be compared with that in England. The only other important writer in Germany was Heinrich Heine (1797–1856), born of orthodox Jewish parents but later a convert to Christianity for the sake of expediency. Like Shelley and Byron, Heine was an individualist and a relentless critic of entrenched conservatism. He devoted nearly the whole of his active life to what he loved to call "humanity's war of liberation." But he was not merely a witty satirist and pungent critic of smugness and reaction. In his *Book of Songs* he displayed lyric gifts of tenderness and melancholy and a haunting charm of melody which few other poets of his day could surpass. He has been aptly called "a nightingale nesting in the wig of a Voltaire."

Romanticism in France as in England wavered between a mystic irrationalism, on the one hand, and a gallant defense of individual

[1] See above, pp. 243-244.

liberty and social reform on the other. The chief exponent of the irrational tendency was François de Chateaubriand (1768–1848), a kind of stepfather of French romanticism. Chateaubriand found in the mysteries of Christianity and in the "holy innocence" of simple folk the sublimest beauty in the universe. Along with Joseph de Maistre and others he was the prophet of a Catholic revival designed to guide men back to an age of faith and thus save them from the perils of reason. The libertarian and individualist aspect of French romanticism was best exemplified by the work of George Sand (1804–1876) and Victor Hugo (1802–1885). The former, whose real name was Aurore Dupin, wrote novels of country life with an idyllic charm which has endeared them to countless readers. She was one of the first to make peasants and humble laborers the heroes of fiction. Later she became a zealous advocate of republicanism and of the rights of women to a love untrammeled by marital convention. A novelist of much wider influence was Victor Hugo, who for many years was the living voice of French romanticism. Intensely interested in public affairs, he was an eloquent champion of political freedom and of justice for those who were caught in the web of fate. His best-known work is *Les Miserables*, an epic of the redemption of a soul purified by heroism and suffering and a powerful indictment of social cruelty.

French romantic literature

In attempting to judge the importance of literary romanticism as a factor of social and intellectual progress, we should note, first of all, its grave limitations. The disdain for reason and scientific analysis by even the most liberal of the romanticists was certainly a serious handicap to any permanent solution of humanity's problems. Furthermore, their exaggerated emotionalism occasionally made a mockery of some of their most laudable intentions. Excesses of sentimentality are not easily controlled. To allow free reign to the emotions in one direction is to run the risk of an impairment of judgment in others. Thus we find Victor Hugo hurling bitter invectives against Napoleon III, whom he called "Napoleon the Little," but singing paeans of praise to Napoleon I. It was perhaps for this reason also that the liberalism of so many of the romanticists eventually gave way to nationalism, as in the case of Schiller, or even to hopeless reaction, as in the case of Wordsworth. Yet, notwithstanding these weaknesses, literary romanticism accomplished no small amount of good in combating repression in many of its forms and in proclaiming the nobility of the common man. And probably it is safe to say that it was these elements of strength which really survived to influence the work of such writers as Dickens, George Eliot, and John Ruskin in the middle and later years of the nineteenth century.

The importance of literary romanticism

The growth of a romantic movement in art was scarcely noticeable until after the downfall of Napoleon. This was especially true in France, which has been the most fruitful source of artistic progress in modern times. With the outbreak of the French Revolution a

The revival of classicist art

strong reaction set in against the elegant rococo style of the Old Regime. But instead of launching a new tradition the artists of the Revolution simply went back to what was supposed to be a *pure* classicism, on the assumption that this would be in harmony with the rationalist ideals of the new order. The advent of Napoleon made no perceptible change. The Little Corporal liked to think of himself as a modern Caesar or Alexander the Great. Accordingly, he adopted the Roman imperial eagle as one of his emblems, invested his son with the title of King of Rome, and erected arches, columns, and temples of triumph in the city of Paris. Under such influences it is not surprising that a classicist movement in art of more than ordinary vitality should have crystallized in France in the first two decades of the nineteenth century. It reached its apex in painting under the leadership of Jacques David (1748–1825) and Jean Auguste Ingres (1780–1867). The work of both of these men was characterized by order and restraint, by a strict attention to form, and by a liberal choice of themes from Greek and Roman mythology.

The eventual triumph of romanticism in painting

Notwithstanding the vigor of the classical revival, the force of the romantic influence, overflowing from the channels of literature and philosophy, was not to be denied. After the defeat of Napoleon at Waterloo the period of the Enlightenment and the Revolution was definitely accepted as a closed chapter. There seemed to be no longer any reason for trying to preserve the ideals of a bygone age. As a consequence, classicism in painting was quickly supplanted by romanticism. The foremost champion of the new style in France was Eugene Delacroix (1798–1863), who gloried in portraying struggles for freedom and dramatic scenes from medieval history, illustrated by his *Entrance of the Crusaders into Constantinople*. In place of the sobriety and restraint of classical painting he substituted a lurid emotionalism, the effect of which was often heightened by riotous splashes of color. The work of Delacroix was paralleled to a certain distance by that of the romantic landscape painters. Their chief representative was Camille Corot (1796–1875), leader of the Barbizon school, so called from the village of Barbizon near Paris. Among others who followed the same tradition was the Englishman, J. M. W. Turner (1775–1851). The romantic landscape painters were just as much addicted to effusive displays of emotionalism as Delacroix, but it was an emotionalism of a quieter tone. They were poets of nature who suffused forests and streams and mountains with a gentle haze of tender worship.

Architecture not much affected by romanticism

From what we have learned about the influence of romanticism upon literature and painting, we should normally expect that architecture also would be deeply affected. Such, however, was not the case. While it is true that, under romantic inspirations, a movement was started about 1840 to revive the medieval Gothic, the results were only moderately significant. A large number of churches with soaring spires and pointed arches were actually built, and even some

government buildings also; but not infrequently what was supposed to be pure Gothic turned out to be a crude eclecticism made up of elements taken only partly from the Gothic. In general, the classical influence was still too strong to be overcome, with the result that throughout the greater part of the nineteenth century variations of the baroque continued to be the most popular building styles. Not until about 1900 was there much evidence of a desire to create a new and original architecture more truly expressive of our own civilization.

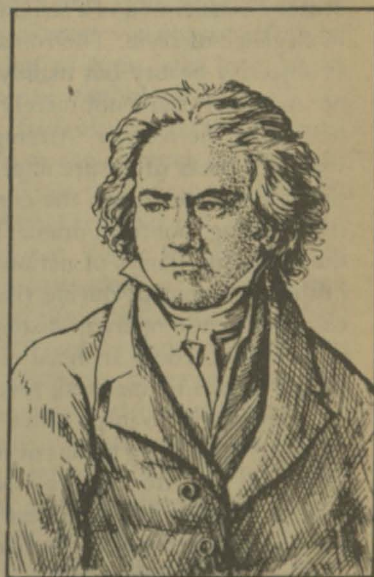
The beginning of romanticism in music

In music, as in painting and in literature, the first three decades of the nineteenth century were pre-eminently an age of romanticism. The romantic spirit in music was evidenced in a number of ways. There was an inclination to rebel against the rigidity of eighteenth-century classicism and a striving for intensity of feeling in preference to elegance of style. The romanticists regarded music not essentially as objective beauty but mainly as a medium for expressing man's inner moods. It must not merely please but must stir a sympathetic vibration in the listener. Attempts were made to capture in tone the various aspects of nature and, above all, human sentiments and passions. To some extent the composers, like the poets, responded to the exciting political drama about them. particularly by fanning the mounting flames of nationalism. All of these traits are illustrated in the development during this period of German opera, which was called romantic opera to distinguish it from its classical Italian counterpart. Discarding artificial nicety for dramatic power, it employed native Germanic material, reveled in an atmosphere of heroic struggle, and sought to inspire love for the German fatherland. C. M. von Weber, the guiding genius of this movement, was a worthy successor of Gluck and Mozart as a vitalizer of the opera. That the spirit of romanticism could be successfully infused into the forms of classicism was evidenced by the two greatest musical giants of the epoch, Beethoven and Schubert.

Ludwig van Beethoven

Ludwig van Beethoven (1770–1827) was born in the west German town of Bonn but spent most of his productive years in Vienna, then regarded as the musical capital of Europe. His life seems to bear out the adage that great art is the product of suffering. Poverty and a harsh father made his childhood unhappy, and his adult life was a succession of difficulties, largely occasioned by his impractical nature and irascible temper. He was not only coarse in manner, careless in dress, and blunt to the point of rudeness, but overly sensitive and suspicious, frequently injuring his closest friends because of resentment toward some imaginary slight. In spite of such traits he was able to retain the loyalty of his friends and to fascinate and humble the Viennese aristocracy, both male and female. The bold independence of thought and action which he carried off successfully in a staid aristocratic society contrasts decidedly with the servility of Haydn and augurs the transition to a new age. The crowning source

of Beethoven's suffering was his deafness, which began to trouble him before he was thirty and became complete in his later years. As a result, he was not only forced to give up playing in public, but many of his greatest works he never heard at all. This affliction, far from diminishing his productivity, drove him more completely into himself. Beethoven began his career as a pianist extraordinary, with unbelievable powers of extemporary playing, and the series of piano sonatas which he composed have ever since been a standard repertory for this instrument. His one opera is occasionally performed, but he was at his best in the fields of chamber music and the symphony. While he made no substantial changes in musical form, he allowed himself complete freedom in method of treatment, effecting a new



Ludwig van Beethoven (1770–1827).

and coherent synthesis of classical elements and enriching them with a passionate idealism. His works affirm the magnificent hopes of the Revolutionary era, undaunted by its reactionary aftermath. A fervent believer in freedom and in the dignity of man, he was not content to be the idol of aristocratic circles but strove to reach a wide popular audience. At the same time he subjected himself to the most rigorous self-discipline, laboring ceaselessly to perfect his own ideas, revising any number of times before considering a composition finished. His stirring *Third Symphony*, completed in 1804, was planned in honor of Napoleon, but when Beethoven learned that his hero was about to make himself emperor, he angrily tore off the title page bearing Bonaparte's name. Subsequently the work became known as the "Heroic Symphony" (*Eroica*). Although Beethoven was criticized by conservatives as an innovator addicted to grating dissonances, general recognition of the soundness of his

methods came rapidly, and in contrast to Bach he was widely acclaimed during his lifetime. Changes in taste and idiom with the passing of the years have by no means diminished his stature; he is easily the musical titan of the nineteenth century.

CHAPTER 19 The Industrial Revolution of the Nineteenth and Twentieth Centuries

1. The Complex of Causes

The Industrial Revolution sprang from a multitude of causes, some of them much more remote than is usually suspected. It may be well to consider first the early improvements in technology. The marvelous inventions of the late eighteenth century did not spring full-blown like Minerva from the brow of Zeus. On the contrary, there had been a more or less fruitful interest in mechanical innovations for some time. The period of the Commercial Revolution had witnessed the invention of the pendulum clock, the thermometer, the air pump, the spinning wheel, and the stocking frame, to say nothing of improvements in the technique of smelting ores and making brass. About 1580 a mechanical loom was devised, capable of weaving several strands of ribbon at the same time. There were also important technological advances in such industries as glass blowing, clockmaking, wood finishing, and shipbuilding. Several of the early inventions made necessary the use of factory methods. For example, the silk-throwing machine invented in Italy about 1500 had to be housed in a large building and required a considerable corps of workers. In the Temple Mills on the Thames above London, according to a description by Daniel Defoe in 1738, brass was beaten into kettles and pans by enormous hammers operated by water power. These early technological improvements are hardly to be compared in significance with those made after 1760, but they do indicate that the machine age did not burst upon the world out of a clear sky.

Early improvements in technology

Among other causes of paramount importance were certain more direct consequences of the Commercial Revolution. That movement brought into existence a class of capitalists, who were constantly seeking new opportunities to invest their surplus wealth. At first this wealth could be readily absorbed by trade or by mining, banking, and shipbuilding ventures; but as time went on the opportunities in

Other effects of the Commercial Revolution

such fields became limited. As a consequence more and more capital was made available for the development of manufacturing. But a rapid development of manufacturing would scarcely have occurred had there not been a growing demand for industrial products. This demand grew largely from the establishment of colonial empires and from the marked increase in the population of Europe. It will be recalled that one of the primary objects in the acquisition of colonies was to expand the market for manufactured goods from the mother country. As one evidence that this object was reasonably well attained, we have the fact that in the single year 1658 no fewer than 24,000 pairs of shoes were shipped to Virginia from England. At the same time the potential markets at home were being rapidly enlarged by the rapid increase of population in western European countries. In England the number of inhabitants rose from 4,000,000 in 1600 to 6,000,000 in 1700 and to 9,000,000 by the end of the eighteenth century. The population of France grew from 17,000,000 in 1700 to 26,000,000 about a hundred years later. How much of this increase was due to the advancement of medicine in the eighteenth century, and how much of it was the product of a more ample food supply resulting from the expansion of trade, is a debatable question; but certainly the influence of the second of these factors cannot be ignored. Finally, the Commercial Revolution gave a stimulus to the growth of manufactures through its basic gospel of mercantilism. The mercantilist policy was designed, as much as for any other purpose, to increase the quantity of manufactured goods available for export and thereby to ensure a favorable balance of trade.

The need for fundamental mechanical improvements in certain industries

Despite the importance of the causes already mentioned, the Industrial Revolution would undoubtedly have been delayed had it not been for a need for fundamental mechanical improvements in certain fields of production. By 1700 the demand for charcoal for smelting iron had so depleted the resources of timber that several of the nations of western Europe were threatened with deforestation. A partial solution was found about 1709 when Abraham Darby discovered that coke could be used for smelting. But in order to obtain sufficient coke it was necessary that coal be mined in much larger quantities than ever before. Since the chief obstacle to the extraction of coal was the accumulation of water in the mines, the need for the new fuel led to a search for some convenient source of power to drive the pumps. Various experiments in connection with this search finally resulted in the invention of the steam engine. An even more crucial need for mechanization existed in the textile industry. With the increasing popularity of cotton clothing in the seventeenth and eighteenth centuries, it was simply impossible to provide enough yarn with the primitive spinning wheels still in use. Even when every available woman and child was pressed into service, the demand could not be met. In Germany the soldiers in the barracks were actually put to work spinning cotton thread. As the need grew more

and more urgent, rewards were offered by scientific societies and business organizations for improved methods of producing yarn. In 1760, for example, the English Society of Arts offered a prize for the invention of a machine which would enable one person to spin six threads at once. The result of all this attention to mechanical needs was the development a few years later of the spinning jenny and the water frame, the forerunners of a series of important inventions in the textile industry. As the practicability of these machines was soon demonstrated, mechanization was bound to be extended to other manufactures.

2. *Men and Machines in the Early Days*

The application of machinery to cotton manufactures

The initial stage of the Industrial Revolution, from about 1760 to 1860, witnessed a phenomenal development of the application of machinery to industry, which laid the foundations for our modern mechanical civilization. As we have seen, the first of the branches of industry to be mechanized was the manufacture of cotton cloth. This was not one of the staple pursuits of Englishmen but was a young enterprise, in which every entrepreneur was free to employ almost any methods he pleased. Furthermore, it was a business in which profits depended upon quantity production. If the industry were to make any progress at all, some means had to be devised of turning out a greater volume of yarn than could ever be accomplished with the primitive implements still in use. The first of the contrivances developed in response to this need was the spinning jenny, invented by James Hargreaves in 1767. The spinning "jenny," so called from the name of the inventor's wife, was really a compound spinning wheel, capable of producing sixteen threads at once. Unfortunately the threads it spun were not strong enough to be used for the longitudinal fibers, or warp, of cotton cloth. It was not until the invention of the water frame by Richard Arkwright about two years later that quantity production of both kinds of cotton yarn became possible. Finally, in 1779, another Englishman, Samuel Crompton, combined features of both the spinning jenny and the water frame in a hybrid contraption which he appropriately called the mule. This machine was gradually improved, until about twenty years later it was capable of spinning simultaneously 400 strands of the finest quality of yarn.

The power loom and the cotton gin

The problems of the cotton industry were still not entirely solved. The invention of spinning machines had more than made up for the deficiency of yarn, but now there was a scarcity of weavers. Those who followed this occupation were able to command such high wages that they were alleged to be strutting about with five-pound notes stuck in their hat bands and to be eating roast goose for their Sunday dinners. It soon became obvious that the only remedy for

this shortage of weavers would be the invention of some kind of automatic machine to take the place of the hand loom. Many declared such a contrivance impossible, but a Kentish clergyman, the Reverend Edmund Cartwright, was not to be discouraged so easily. He reasoned that if automatic machinery could be applied to spinning, it could be just as logically extended to weaving. Knowing little about mechanics himself, he hired a carpenter and a smith to put his ideas into effect. The result was the power loom, which Cartwright patented in 1785. A good many years elapsed, however, before it was sufficiently improved to be more than a modest success. Not until about 1820 did it largely displace more primitive methods of weaving. Meanwhile, the invention of a machine for separating the seeds from the cotton fiber made possible a much more abundant supply of raw cotton at a lower price. This was the cotton gin, invented by a Yankee schoolteacher, Eli Whitney, in 1792.

Origin of the factory system

Several of the new inventions in the textile industry contributed to the growth of the factory system. The water frame, the spinning mule, and the automatic loom were large and heavy machines which could not possibly be set up in the cottages of individual workers. All were eventually designed to be driven by power, and, besides, they cost so much that no one but a wealthy capitalist could afford to buy them. It was therefore inevitable that they should be installed in large buildings, and that the workers employed to operate them should be brought under the supervision of the owner or of a manager acting for him. Such were the essentials of the factory system in its original form. Appropriately enough, the real founder of this system was Richard Arkwright, inventor of the water frame. By indomitable perseverance and shrewd management, Arkwright rose from the status of an obscure barber and wigmaker to that of a captain of industry. Commonly working from five in the morning until nine at night, he struggled against obstacles for years. He encountered strenuous opposition from the powerful woolen interests. His shops were gutted by mobs of irate workers who feared that machines would deprive them of their jobs. He was accused, perhaps with some truth, of stealing his ideas for the water frame from others. Altogether he is said to have spent some $60,000 before his plans brought him any profit. He established his first factory, operated by water power, in 1771.

Newcomen's steam engine

It is difficult to believe that the factory system would ever have assumed much importance had it not been for the perfection of the steam engine. Water wheels were slow, and streams of sufficient force to turn them were not always available. Other sources of power were also tried, but with even less satisfactory results. The original power loom invented by Cartwright was operated by a cow, while some of his successors used horses and even a Newfoundland dog. That steam could be employed as a means of power

had been known for centuries. Crude steam engines had been devised by Hero of Alexandria in the first century B.C., by Leonardo da Vinci during the Renaissance, and by various individuals in the early modern period. None of these, however, had been put to any definite use except to turn the spit in royal kitchens and to perform miracles in ancient temples. The first man to apply the power of steam to industrial purposes was Thomas Newcomen, who in 1712 devised a crude but effective engine for pumping water from the British coal mines. By the middle of the century nearly a hundred of his engines were in use. Some were of enormous size and could do the work of more than fifty horses; one had a cylinder six feet in diameter. Even the smallest could generate more power than most water wheels.

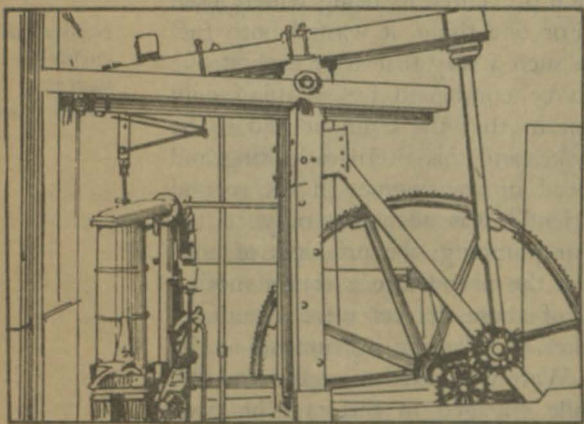
Newcomen's engine greatly improved by James Watt

Though of great value to the coal mining industry, Newcomen's engine suffered from defects which prevented its being widely used for general industrial purposes. For one thing, it wasted both fuel and power. It was constructed in such a way that after each stroke of the piston, the steam had to be condensed by spraying cold water into the cylinder. This meant that the cylinder had to be heated again before the next stroke, and this alternate heating and cooling greatly retarded the speed of the engine. In the second place, Newcomen's "Miner's Friend" was adaptable only to the straight-line motion necessary for pumping; the principle of converting the straight-line action of the piston into a rotary motion had not been discovered. Both of these defects were eventually remedied by James Watt, a maker of scientific instruments at the University of Glasgow. In 1763 Watt was asked to repair a model of the Newcomen engine. While engaged in this task he conceived the idea that the machine would be greatly improved if a separate chamber were added to condense the steam, so as to eliminate the necessity of cooling the cylinder. He patented his first engine incorporating this device in 1769. Later he invented a new arrangement of valves which permitted the injection of steam into both ends of the cylinder, thereby making the piston *work* on the backward as well as on the forward stroke. In 1782 he devised a means of converting the action of the piston into a circular motion and thus made the engine available for driving machinery in factories. Unfortunately Watt's genius as an inventor was not matched by his business ability. He admitted that he would "rather face a loaded cannon than settle a disputed account or make a bargain." As a consequence he fell into debt in attempting to place his machines on the market. He was rescued by Matthew Boulton, a wealthy hardware manufacturer of Birmingham. The two men formed a partnership, with Boulton providing the capital. By 1800 the firm had sold 289 engines for use in factories and mines.

Few single inventions have had greater influence upon the history of modern times than the steam engine. Contrary to popular

opinion, it was not the initial cause of the Industrial Revolution; instead, it was partly an effect. Watt's engine, at least, would never have become a reality if there had not been a demand for an effective source of power to operate the heavy machines already invented in the textile industry. On the other hand, the perfection of the steam engine was certainly a cause of the more rapid growth of industrialization. It raised the production of coal and iron to a new importance. It made possible, as we shall presently see, a revolution in transportation. It provided almost unlimited opportunities for accelerating the manufacture of goods, thereby making the industrialized nations the richest and most powerful in the world. Before the development of the steam engine, the resources of power were largely at the mercy of the weather. In time of drought, low water in the streams would probably force the mills to curtail operations

The importance of the steam engine



The Steam Engine Invented by James Watt (1736–1819).

or even to shut down entirely. Ships on ocean voyages might be delayed for weeks by lack of wind. Now, however, there was a constant supply of energy, which could be tapped and used when needed. It is therefore not too much to say that the invention of Watt's engine was the real beginning of the age of power.

One of the industries which owed its rapid development to the improvement of the steam engine was the manufacture of iron and iron products. While many of the new machines, such as the spinning jenny and the water frame, could be constructed of wood, steam engines required a more substantial material. Furthermore, the cylinders of these engines needed to be bored as accurately as possible in order to prevent a loss of power. This made necessary a considerable advance in the production of machine tools and in scientific methods of iron manufacture. The pioneer in this work was John Wilkinson, a manufacturer of cannon. In 1774 Wilkinson patented a method of boring cylinders which reduced the percentage of error to a very small amount for that day. Later he turned to the building of iron barges and to the making of plates for iron

Early development of the iron industry

bridges. He never wrote a letter without mentioning iron on every page and directed in his will that he should be buried in an iron coffin. Even more important than the achievements of Wilkinson were the accomplishments of another Englishman, Henry Cort, a naval contractor. In 1784 Cort devised the method of puddling, or stirring the molten iron to eliminate a larger percentage of its carbon content. This process made possible the production in quantity of the tougher grade of metal known as wrought iron. Two years later Cort invented the rolling mill for the manufacture of sheet iron. These two achievements revolutionized the industry. Within less than twenty years the production of iron in England quadrupled, and the price dropped to a fraction of what it had been.

Early developments in transportation: (1) roads and canals

The fundamental changes in modes of production which have just been described were soon followed by momentous developments in transportation. The first signs of a definite improvement in methods of travel began to appear about 1780. It was about that time that the construction of turnpikes and canals in England was started in earnest. By 1830 nearly all of the highways had been drained and covered with a surface of broken stone, while the principal streams had been linked together by a network of 2500 miles of canals. The improvement of roads made possible a faster stagecoach service. In 1784 the Postmaster General inaugurated a mail service with coaches that ran continuously day and night, covering a distance of 120 miles in twenty-four hours. By the end of the century special stages, known as "flying machines," operated between all of the principal cities, sometimes achieving the sensational speed of nine or ten miles per hour.

(2) the first railroads

But the really significant progress in transportation did not come until after the steam engine had been generally accepted as a dependable source of power. Attempts were first made to adapt the use of steam to stagecoaches, and several of these ancestors of the modern automobile were actually put on the highways. The most successful was one built about 1800 by Richard Trevithick, which managed to run ninety miles over the road from London to Plymouth. Gradually the opinion grew that it would be more profitable to use the steam engine to draw a train of cars over iron rails. A number of such railroads were already in existence for the purpose of transporting coal, but the cars were drawn by horses. The man primarily responsible for the first steam railway was George Stephenson, a self-made engineer who had never even learned to read until he was seventeen years of age. While employed as an engine-wright at a colliery he devoted his leisure hours to experiments with locomotives. In 1822 he convinced a group of men who were projecting a coal railroad from Stockton to Darlington of the merits of steam traction, and was appointed engineer for the line with full liberty to carry out his plans. The result was the opening three years later of the first railway operated entirely by steam. The locomotives he

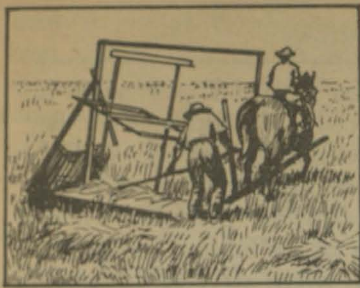
built for this line attained a speed of fifteen miles an hour, the fastest rate at which human beings had yet traveled. In 1830 he designed his famous *Rocket*, which thundered over the tracks of the Manchester and Liverpool Railroad at nearly twice the speed of the earlier models. Before Stephenson died in 1848, nearly 6000 miles of railroad had been built in England and a similar amount in the United States.

(3) the beginning of steam navigation

Meanwhile the steam engine was being gradually applied to water transportation. Here it was Americans rather than Englishmen who took the lead. Precisely who should receive credit for inventing the steamboat is a matter of dispute. There is evidence that a number of men had something to do with it. So far as the records go, the earliest operation of a boat propelled exclusively by steam was the achievement of a Virginia mechanic by the name of James Rumsey. In 1785 in the presence of George Washington he drove his craft against the current of the Potomac at the rate of four miles an hour. A short time later another American, John Fitch, constructed a boat which actually carried passengers on the Delaware for several months in 1790. Fitch's steamboat is particularly significant because it embodied a crude screw propeller instead of the paddle wheel universally employed by the other inventors. But Fitch was never able to make his craft a financial success. After vainly attempting to persuade governments to adopt his invention, he committed suicide in 1798. Still a third American, Robert Fulton, is given the credit for having made the steamboat commercially successful. That Fulton was any more ingenious than Rumsey or Fitch is open to doubt, but he was a good enough salesman and promoter to secure the backing of a wealthy capitalist, and he knew how to keep himself in the public eye. In 1807 he was acclaimed as a national hero when his *Clermont*, equipped with a Boulton and Watt engine and a paddle wheel, traveled the entire distance from New York to Albany under its own power. This was the beginning of an era of steam navigation. Soon paddle-wheel craft similar to Fulton's were chugging over rivers and lakes not only in America but in Europe. In April, 1838, the first steamships, the *Sirius* and the *Great Western*, crossed the Atlantic. Two years later Samuel Cunard founded the famous Cunard Line, providing a regular transoceanic service with vessels propelled entirely by steam.

The invention of the telegraph

The one significant improvement in communications during the first stage of the Industrial Revolution was the invention of the telegraph. As early as 1820 the French physicist Ampère discovered that electromagnetism could be used for sending messages by wire between distant points. About all that remained was to devise effective instruments for transmitting and receiving the messages. Experiments for this purpose were carried on by a number of individuals. Three of them succeeded almost simultaneously. During the year 1837 systems of electric telegraphy were invented by the



The World's First Reaper. Invented by Cyrus Hall McCormick in 1831, the machine would cut 6 to 8 acres of grain in a day. It did not bind the grain into sheaves, but left this process to be done by hand.

The First Train to Enter the City of Washington. The locomotive was built in 1832 and accumulated a service of 60 years.



German Karl Steinheil, by the Englishman Charles Wheatstone, and by the American Samuel Morse. It was not until 1844, however, that the first telegraph line, efficient enough for commercial purposes, was established. This was the line between Baltimore and Washington, which Morse succeeded in having built on the strength of improvements in his own invention. Once started, telegraph systems multiplied all over the world. Soon all important cities were linked, and by 1851 a cable had been laid under the English Channel. The crowning achievement of all was the laying of the first Atlantic cable in 1866 under the direction of the American capitalist, Cyrus Field.

Improvements in agriculture

In our study of the Commercial Revolution we noted that that movement was accompanied, especially in England, by momentous changes in agriculture, such as the breakdown of manorial farming, the enclosure of common lands, and the compacting of individual holdings. The Industrial Revolution also had its agricultural aspects. They were especially noticeable in the first sixty years of the nineteenth century. Among them were the production of better breeds of livestock; the introduction of new crops, such as the sugar beet, which was now being extensively cultivated in Germany and France; and the development of agricultural chemistry by Justus von Liebig (1803–1873), which made possible the production of artificial fertilizers. Agriculture in this period also came under the influence of mechanization. Better plows and harrows were designed, and the threshing machine was quite generally adopted. In 1834 the American farmer, Cyrus McCormick, patented his mechanical reaper and soon afterward began its manufacture in Chicago. By 1860 these machines were being sold at the rate of 20,000 a year. As a result of these various improvements, agriculture all over the world rejoiced in an unprecedented prosperity, which lasted until the great depression of 1873.

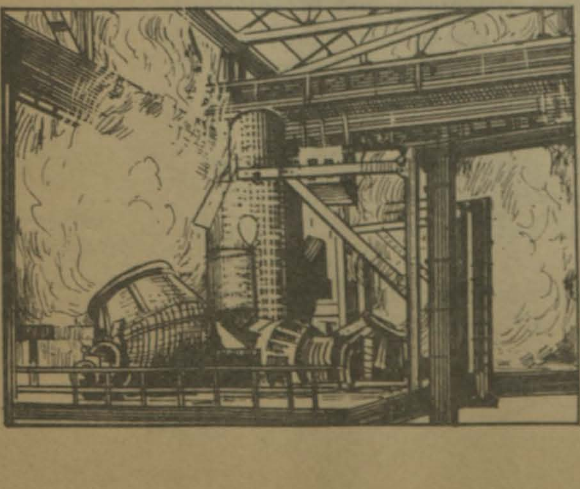
3. The Second Industrial Revolution

The nature of the Second Industrial Revolution

About 1860 the Industrial Revolution entered a new phase so different from what had gone before that some historians are disposed to call it the Second Industrial Revolution. The events which ushered it in were mainly three in number: the development of the Bessemer process of making steel in 1856; the perfection of the dynamo about 1873; and the invention of the internal-combustion engine in 1876. In general, the features which serve to distinguish the Second Industrial Revolution from the first may be stated as follows: (1) the substitution of steel in place of iron as the basic industrial material; (2) the replacement of coal by gas and oil as principal sources of power and the use of electricity as a major form of industrial energy; (3) the development of automatic machinery and a high degree of specialization of labor; (4) the use of alloys and light metals and the products of industrial chemistry; (5) radical changes in transportation and communication; (6) the growth of new forms of capitalist organization; and (7) the spread of industrialization to central and eastern Europe and even to the Far East. A word or two must be said about each of these major developments.

The discovery of new processes of making steel

Methods of making steel have been known for centuries. As early as the year 1000 the Saracens were producing excellent steel swords at Damascus. From the late Middle Ages, Europeans had also known how to manufacture the desirable material. But the methods were slow and difficult and the product expensive. In 1856 Sir Henry Bessemer discovered that the introduction of a jet of air into the molten iron in a blast furnace would eliminate all but the tiniest percentage of carbon and thereby convert the iron into steel. The result was to reduce the price of steel to less than a seventh of its former cost. When it was revealed that the new process could not be applied to any but the higher grades of ores, two English chemists, Sidney Thomas and P. C. Gilchrist, set to work to im-



The Bessemer Process of Manufacturing Steel. This process, invented in 1856, involved the introduction of a jet of air into the molten iron to reduce its carbon content and thereby toughen it for the production of steel.

prove it. In 1878 they discovered a method whereby even low-grade iron with a heavy content of phosphorus could also be converted into steel. The consequences of this advance were astounding. Not only was the phosphoric iron of England brought into production, but enormous deposits in Lorraine, in Belgium, and in the United States now became immensely valuable. Between 1880 and 1914 the output of steel in Great Britain rose from 2,000,000 tons to 7,000,000, in Germany from 1,000,000 to 15,000,000, and in the United States from 1,600,000 to 28,000,000. Steel almost entirely supplanted iron for railroad rails, for the framework of large buildings, for bridges, and for other purposes where a cheap metal with a high degree of tensile strength was desired.

The invention of the dynamo

The displacement of coal as the basic source of power resulted, first of all, from the invention of the dynamo, a machine for converting mechanical energy into electrical energy. Although the principle of the dynamo was formulated by Michael Faraday in 1831, no machine of this kind capable of practical use was available until 1873. From that time on the harnessing of electrical energy to the mechanism of industry went rapidly ahead. The steam engine came to be relegated gradually to the background, to be used primarily for driving dynamos. The electric energy thus generated is converted by electric motors into mechanical energy. In some areas, especially where coal is scarce, the steam engine for driving dynamos has been superseded by water power. By 1929 electricity provided two-thirds of the power required by industry in Great Britain and an even larger proportion in Germany.[1] The German A.E.G. (Allgemeine Elektrizitäts Gesellschaft), manufacturing motors, generators, and other electrical equipment, had evolved into the largest industrial unit in Europe.

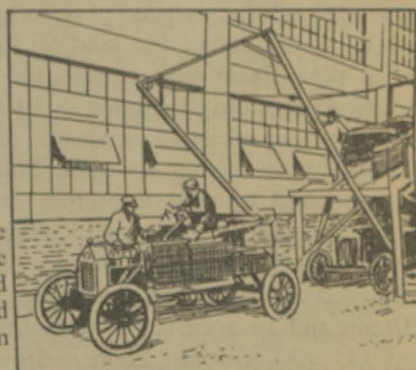
The internal-combustion engine

A second revolutionary development making available new sources of power was the utilization of petroleum products to add to the supply of energy. The existence of petroleum had been known for some time before its value was discovered. Until the middle of the nineteenth century it was regarded as a curiosity. Labeled as Indian Oil or Seneca Oil, it was sold in the United States for its alleged medicinal properties. Even after its value for lubricating purposes was revealed, its use was limited by scarcity. In 1859 Edwin L. Drake solved the problem of an adequate supply by drilling the first oil well near Titusville, Pennsylvania. New uses for the product were gradually found, although for many years most of it went into the manufacture of kerosene for lamps. In 1876, however, Nikolaus Otto invented the first successful internal-combustion engine. This was the starting point of a series of developments which heralded the dawn of a motorized age. A few years afterward Gottlieb Daimler adapted the internal-combustion engine to the use of gasoline instead of natural gas, and

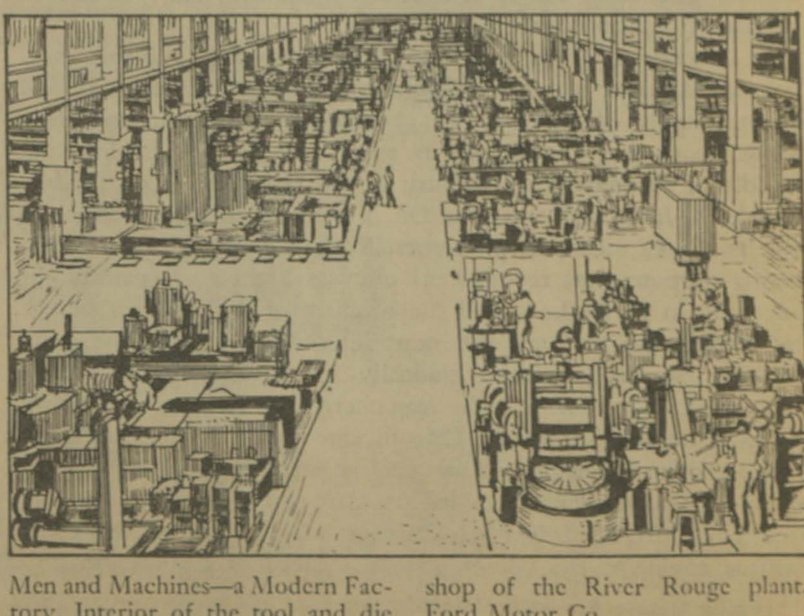
[1] Herbert Heaton, *Economic History of Europe*, p. 518.

Karl Benz equipped it with an electric spark to ignite the fuel. The perfection of the carburetor about 1890 by another German, Wilhelm Maybach, also contributed much to the potentialities of gasoline power. Finally, in 1897, Rudolf Diesel invented an internal-combustion engine using as fuel neither gas nor gasoline but crude oil. Since the 1930's Diesel engines have come into extensive use in ocean liners, locomotives, trucks, and buses. In Europe some motor cars are Diesel-powered.

Among the most typical features of the Second Industrial Revolution have been the introduction of automatic machinery, an enormous increase in mass production, and a division of the tasks of labor into minute segments of the manufacturing process. All three of these things have gone hand in hand, since the years just preceding World War I. A characteristic example of the development of



An Early Assembly Line of the Ford Motor Co., 1913. Bodies were slid down the ramp and attached to the chassis as they passed through the line below. Production amounted to 1000 cars a day.



Men and Machines—a Modern Factory. Interior of the tool and die shop of the River Rouge plant, Ford Motor Co.

automatic machinery has been the invention of the photoelectric cell, or the "electric eye," which can be used to throw switches, to open doors, to sort eggs, to inspect tin cans, to count sheets of paper and measure their thickness, and even to eliminate counterfeit bills. Machines have been invented to direct and operate other machines and to complete whole series of manufacturing processes which formerly required much human labor. Not only has automatic machinery resulted in a marked increase in mass production, but the volume of goods turned out by industry has also been greatly expanded by the adoption of the endless conveyor belt. The idea for this was copied originally by Henry Ford about 1908 from the Chicago packers, who used an overhead trolley to move carcasses of beef along a line of butchers. Ford gradually improved the device to a point where he could assemble a complete chassis of his famous Model T in an hour and thirty-three minutes. In recent years the principle of the conveyor belt and the assembly line, which requires each worker to toil all day at a simple, monotonous task, has been adopted in every automobile factory in the United States and in many other industries as well. It has provided the world with a staggering abundance of goods and has reduced the prices of some articles which were formerly luxuries for the rich; but no one is yet able to foresee how serious may be its effects upon the minds and morale of the workers.

The growth of mass production and the adoption of automatic and highly specialized processes in industry

Recent changes in methods of production have come not only from the invention of intricate machines but also from a growing domination of industry by science. As a matter of fact, the significant discoveries of the Second Industrial Revolution have emanated more often from the laboratory of the physicist or chemist than from the brain of the individual inventor. The supremacy of science in the realm of industry was originally foreshadowed in 1856 when William Henry Perkin produced the first aniline or coal-tar dyes. This was the beginning of a marvelous development of synthetic chemistry. From this same coal tar it was discovered that literally hundreds of dyes could be derived, together with an infinite variety of other products, such as aspirin, oil of wintergreen, essence of orange blossoms, saccharine, carbolic acid, and vanilla. As the years passed, many additional substances were added to the list of synthetic products. Methods were devised for manufacturing nitric acid out of the nitrogen in the air, for making glucose from corn, and for producing textile fibers from wood and from minerals. In more recent years remarkable progress has been made in the development of plastics, manufactured from various substances, such as casein, phenol, and coal and petroleum derivatives. The steering wheels on most automobiles are made from such plastics. Good qualities of artificial rubber have also been produced, by various processes based upon the use of either coal or petroleum. Chemists have likewise come to the aid of many of the older industries, dis-

The growing domination of industry by science

covering methods of utilizing hitherto worthless by-products or of increasing the yield from available supplies of raw materials. For example, cotton seeds have been turned into celluloid, cosmetics, smokeless powder, and salad oil, while the cracking process of refining gasoline has more than doubled the yield from a given quantity of petroleum.

Developments in the light metals and ferro-alloys

Closely related to the progress in industrial chemistry have been the developments in connection with the light metals and ferro-alloys. The oldest of the light metals, aluminum, though discovered in 1828, did not come into general use until about 1900. It is obtained from a clay known as bauxite which is found in abundance in Dutch and British Guiana, the West Indies, and the United States. Although more expensive to produce than steel, it is now coming to be used extensively for building construction, as well as for automobile engines, airplanes, cooking utensils, and packaging. In a few years it will probably supplant tin-plated steel for the manufacture of "tin" cans. A much rarer metal, magnesium, was applied during World War II to airplane construction and has been adapted since to other limited uses. Originally produced by electrolysis of magnesium chloride, it is now manufactured in larger quantities from sea water. Of at least equal importance with the light metals are the so-called ferro-alloys. These include manganese, chromium, tungsten, vanadium, molybdenum, and a few others. Found mostly in such countries as China, Turkey, Russia, India, and Rhodesia, they are indispensable for modern industry. They alone can give the hardness and toughness to steel which are necessary for the production of machine tools. Together with other widely scattered critical materials, they furnish excellent illustrations of the economic interdependence of the various parts of the contemporary world.

The revolution in transportation: the extension and improvement of the railroads

The second stage of the Industrial Revolution witnessed perhaps an even greater revolution in transportation and communication than the first. The years after 1860 were marked by feverish activity in railroad building. Before that date there were hardly more than 30,000 miles of railroad in the entire world. By 1890 there were 20,000 miles in Great Britain alone, 26,000 in Germany, and 167,000 in the United States. The service itself was greatly improved by the invention of the air brake in 1868 and by the introduction of the sleeping car, the dining car, and the automatic block-signal system soon afterward. In recent years much attention has been given to increasing the speed of trains. Modern streamlined, Diesel-powered trains race over distances of hundreds of miles at average speeds of eighty or more miles per hour. After 1918, however, the railroads suffered severely under competition from newer forms of transportation. By way of illustration, the number of passengers carried by American railroads dropped from 1,200,000,000 in 1920 to 434,000,000 in 1933. During the same period the volume of freight declined from 2,400,000,000 tons to 1,300,000,000. By 1954 the number

of passengers carried had risen to only 440,000,000, in spite of an estimated increase in population of 30 per cent. The volume of freight transported in 1954 was almost exactly the same as in 1920.

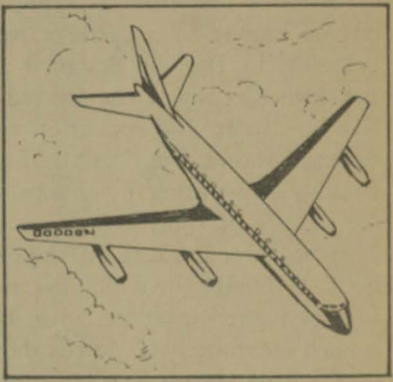
The automobile

The most important competitor of the railroads is the automobile, together with its offshoots, the bus and the motor truck. It is impossible to assign credit for invention of the automobile to any one person, though various individuals have claimed it. Both Daimler and Benz made gasoline vehicles in Germany as early as the 1880's, but their original inventions were little more than motorized tricycles. The first man to apply the principle of the internal-combustion engine to a carriage seems to have been the Frenchman Levassor. In 1887 he designed a vehicle with the engine in front and with the power transmitted to the rear wheels by means of a clutch, a shaft, and reduction and differential gears. So far as the evidence shows, this was the first true automobile in history. Obviously, many other inventions were necessary in order to ensure the success of the motorcar as a comfortable and efficient means of travel. Not the least of these were the pneumatic tire perfected by J. B. Dunlop in 1888 and the electric self-starter invented by Charles Kettering about 1910. But the automobile might have remained indefinitely a toy for the rich had it not been for the determination of Henry Ford to produce a car which could be bought by persons of moderate incomes. In 1908 he began the manufacture of his Model T on the basis of the theory that he could make more money by selling a great quantity of cheap cars on a small margin of profit than by turning out an expensive product for the wealthy few. Other companies followed his example, with the result that as early as 1928 the automobile industry had grown into the largest single branch of manufacturing in the United States.

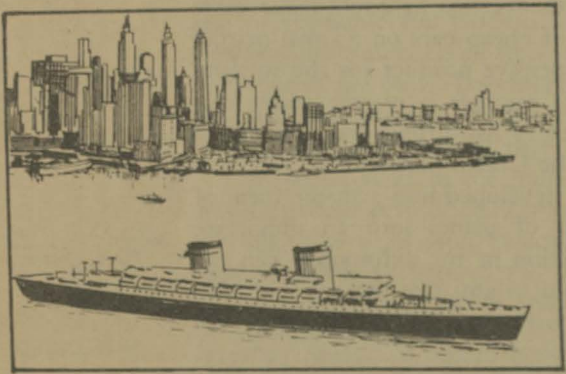
Developments in aviation

Since the 1920's aviation has also developed into a major form of transportation and the production of planes into an important industry. No more than the perfection of the automobile can the invention of the airplane be credited to any one person. The idea that some day man might be able to fly is an old one indeed. Not only was it suggested by Roger Bacon in the thirteenth century, but it was actually embodied in some definite plans for flying machines conceived by the fertile mind of Leonardo da Vinci. Nevertheless, the birth of aviation as a mechanical possibility really dates from the 1890's. It was about that time that Otto Lilienthal, Samuel P. Langley, and others began their experiments with heavier-than-air machines. The work of Langley was carried forward by the Wright brothers, who, in 1903, made the first successful flight in a motor-driven plane. From that point on advancement was rapid. In 1908 the Wright brothers flew nearly a hundred miles. The following year Louis Bleriot crossed the English Channel in the monoplane he had recently invented. During World War I each

of the belligerent nations made strenuous efforts to utilize the possibilities of the airplane as a weapon of slaughter. As a consequence, improvements in design and in efficiency came thick and fast. However, it should be remembered that, even without the war, progress would still have been rapid; for, once an invention has been successfully launched, improvements follow in a kind of geometric ratio. At any rate, by 1919 airplane travel was so clearly taken for granted that a regular service was established between London and Paris.



A Commercial Jet Plane. Such planes, flying at altitudes of 40,000 feet, have cruising speeds of 500–600 miles per hour.



A Modern Ocean Liner. The S.S. *United States*, the fastest liner afloat, passing the skyscrapers of lower Manhattan outward bound for Europe.

Now passenger, mail, and express lines connect nearly every important city in the world. During the year 1956 the various companies operating scheduled services in the United States transported a total of more than 40,000,000 passengers.

Wireless telegraphy, radio, and television

The early Industrial Revolution, or the age of coal and iron, resulted in but one important advance in communication. This, as we have seen, was the invention of the telegraph, which was already in extensive use by 1860. The age of electricity and the internal-combustion engine has been accompanied by the perfection of a number of devices which have gone far toward annihilating both

time and distance in the dissemination of news and in communicating with far-off places. First came the telephone, for which the credit is commonly given to Alexander Graham Bell; though only a few hours after Bell had applied for a patent in Washington on February 15, 1876, Elisha Gray appeared with practically the same idea. Next came the invention of the wireless telegraph by Guglielmo Marconi, on the basis of discoveries by Heinrich Hertz and others relative to the transmission of electromagnetic waves through the ether. In 1899 Marconi dispatched a wireless message across the English Channel and two years later across the Atlantic. The invention of wireless telegraphy paved the way for the development of radio, the wireless telephone, and television. The first was made possible by the work of Lee DeForest, inventor of the vacuum tube, and the second by the discoveries of Poulsen and Fessenden. Commercial broadcasting began in 1920, and telephone service between England and the United States was inaugurated in 1927. The miracle of television is credited to a Scotsman, J. L. Baird. Originally conceived in 1926, it was not adapted to practical use until about fifteen years later.

Other examples of mechanical progress

The foregoing list of inventions by no means exhausts the record of mechanical progress during the Second Industrial Revolution. Particular reference should be made to the invention of the electric light, which has probably contributed as much to the well-being of the human race as any other invention in history. Not only has it enhanced the comfort and safety of contemporary living, but it has been a boon to miners; while many of the difficult operations of modern surgery would be impossible without it. The electric light was first conceived by Sir Humphrey Davy about 1820, but it did not become a commercial success until 1879 when Thomas A. Edison invented the incandescent-filament lamp. Even after that a great many improvements were necessary before it could be widely used. Not until George Westinghouse and Nikola Tesla completed their experiments with the alternating current in 1893 was it possible to provide for the efficient transmission of light and power over long distances. Among other significant mechanical achievements of the period since 1860 have been the invention of type-bar casting (the linotype machine) by Ottmar Mergenthaler, the perfection of artificial refrigeration by J. J. Coleman and others, the invention of the typewriter by Charles Sholes and Carlos Glidden, and the development of motion-picture photography, originated mainly by Edison.

The growth of finance capitalism

The Second Industrial Revolution has been distinguished from the first not merely by technological advances, but even more strikingly by the development of new forms of capitalist organization. The age of coal and iron was also, generally speaking, the age of small enterprise. Until the middle of the nineteenth century, at least, the partnership was still the dominant form of business organization.



Automation—a High-speed Computer, Univac, Manufactured by Remington Rand. The operator, in the foreground, sits at the Supervisory Control Panel. In the background is the Central Computer. On the right are tape-handling mechanisms that feed information into the computer and take away the finished results.

To be sure, many of these partnerships did business on a considerable scale, but they were hardly to be compared with the giant corporations of more recent years. Their capital came mainly from profits plowed back into the business, and their owners generally took an active part in the work of management. Many joint-stock companies had also been formed, but, except for their attributes of permanence and limited liability, they differed little from the partnerships. All of these types of business organization, in so far as they were concerned with manufacturing, mining, or transportation, may be designated as forms of *industrial capitalism*. During the Second Revolution, especially since 1890, industrial capitalism has been largely superseded by *finance capitalism*, one of the most crucial developments of the modern age. Finance capitalism has four outstanding characteristics: (1) the domination of industry by investment banks and insurance companies; (2) the formation of huge aggregations of capital; (3) the separation of ownership from management; and (4) the growth of holding companies. Each of these requires a brief explanation.

The domination of industry by investment institutions

One of the earliest examples of the domination of industry by investment bankers was the formation of the United States Steel Corporation in 1901 with the aid of J. P. Morgan and Company. Since then financial institutions have gained control over an increasing number of American corporations. Of course they do not own all of the stock, or any considerable fraction of it. Several American corporations have hundreds of thousands of stockholders. But these people are chiefly absentee owners; they have little to do with influencing corporate policy, and some of their shares do not even carry voting privileges. Banks and insurance companies wield control in some cases through ownership of a majority of the *voting stock* and in others through floating loans under terms which provide the lenders with extensive powers or with representation on boards of directors.

The huge aggregations of capital which have come to characterize modern industrial organizations include trusts, mergers, and cartels. All of them are organized for an identical purpose: to restrict or prevent competition. Trusts are combinations of all or nearly all

of the producers of certain articles in order to control their price and production. Mergers are combinations of companies producing the same or related articles. They differ from trusts in the fact that their constituent units generally lose their identity and are "merged" into a controlling corporation. Their capital stock is exchanged on mutually agreeable terms for shares in the new or controlling company. Cartels may be defined as loose associations of independent companies for the primary purpose of restricting competition in the sale of their products. They differ from both trusts and mergers in not being corporate entities. They issue no capital stock and have no centralized management. They may function on either a domestic or an international scale. During the 1930's some European governments encouraged the formation of domestic cartels for the purpose of strengthening their national industries against foreign competition. But the most interesting and perhaps the most significant types of cartels are those which cut across international boundaries. For example, before World War II, some American corporations had cartel arrangements with similar corporations in Germany, by means of which patents and discoveries were exchanged and the markets of the world divided up to prevent competition.

Trusts, mergers, and cartels

6. New Social and Economic Doctrines

The Industrial Revolution produced its full complement of economic theory—part of it to justify the new order, part of it for critical analysis, and the remainder as a gospel of social reform. No sooner had the factory system been well established and profits begun to flow into the coffers of the new lords of creation than some of the more articulate and belligerent among them rose up to defend their privileges. In doing so they often displayed a coldness toward the plight of the masses and a brazen confidence in their own right to inherit the earth which the nobles of the Old Regime might well have envied. Indeed, some of the apologists for the new system evolved into a type of economic Bourbons, learning nothing from the past and closing their eyes to the dangers of the future. This attitude was expressed in the doctrines that private property is sacred, that every man has a right to do what he will with his own, and that poverty is invariably the result of laziness and incompetence. Several of the high priests of the new capitalism went so far as to declare that poverty was a good thing for the masses since it taught them to respect their superiors and to be grateful to Providence for such blessings as they did receive. An English clergyman, writing about 1830, set forth the view that it was a law of nature that some should be poor in order that the sordid and ignoble offices in the community might be fulfilled. He opined that thereby the stock of human happiness is much increased, for "the more delicate are not only relieved from drudgery and freed from those

Economic Bourbonism

occasional employments which would make them miserable, but are left . . . to pursue those callings which are suited to their various dispositions and most useful to the state."

But some of the economic theory, even in defense of the capitalist ideal, was more disinterested. Of this type were the teachings of the classical economists, or economic liberals, as they are often called. The founder of classical economics was Adam Smith, whose work was discussed in a preceding chapter. Though Smith wrote before industrial capitalism had reached its full stature, and though some of his teachings did not harmonize well with a strict interpretation of *laissez faire*, there was nevertheless enough in the general implications of his theory to cause him to be acclaimed as the prophet of capitalist ideals. The specific doctrines of classical economics, however, were largely the work of Smith's disciples—including such eminent writers as Thomas R. Malthus, David Ricardo, James Mill, and Nassau Senior. The chief elements in the theory subscribed to by most of these men may be summarized as follows:

The theory of the classical economists

(1) Economic individualism. Every individual is entitled to use for his own best interests the property he has inherited or acquired by any legitimate method. Each person must be allowed to do what he likes with his own so long as he does not trespass upon the equal right of others to do the same. Since each individual knows best that which will redound to his happiness, society will profit most from allowing every one of its members to follow his own inclinations.

(2) *Laissez faire*. The functions of the state should be reduced to the lowest minimum consistent with public safety. The government should shrink itself into the role of a modest policeman, preserving order and protecting property, but never in any wise interfering with the operation of economic processes.

(3) Obedience to natural law. There are immutable laws operating in the realm of economics as in every sphere of the universe. Examples are the law of supply and demand, the law of diminishing returns, the law of rent, and so on. These laws must be recognized and respected; failure to do so is disastrous.

(4) Freedom of contract. Every individual should be free to negotiate the best kind of contract he can obtain from any other individual. In particular, the liberty of workers and employers to bargain with each other as to wages and hours should not be hampered by laws or by the collective power of labor unions.

(5) Free competition and free trade. Competition serves to keep prices down, to eliminate inefficient producers, and to insure the maximum production in accordance with public demand. Therefore no monopolies should be tolerated, nor any price-fixing laws for the benefit of incompetent enterprisers. Furthermore, in order to force each country to engage in the production of those things it is best fitted to produce, all protective tariffs should be abolished. Free international trade will also help to keep prices down.

Several of the disciples of Adam Smith made distinctive contributions of their own. For example, Thomas R. Malthus (1766–1834) introduced the element of pessimism which caused the new economics to be branded as "the dismal science." A clergyman of the Anglican church, rector of a small parish in Surrey, Malthus published his memorable *Essay on Population* in 1798. Issued originally in pamphlet form, the *Essay* grew out of some discussions which the author had with his father concerning the perfectibility of man. The elder Malthus was a disciple of Rousseau, but he was so impressed with his son's arguments against the superficial optimism of the Frenchman that he urged him to put them in writing. The pamphlet created an immediate sensation and provoked discussion for many years afterward. In 1803 it was expanded into a book on the basis of extended researches which the author undertook to refute his critics. The substance of the Malthusian theory is the contention that nature has set stubborn limits to the progress of mankind in happiness and wealth. Because of the voracity of the sexual appetite there is a natural tendency for population to increase more rapidly than the means of subsistence. To be sure, there are certain powerful checks, such as war, famine, disease, and vice; but these, when they operate effectively, augment still further the burden of human misery. It follows that poverty and pain are inescapable. Even if laws were to be passed distributing all wealth equally, the condition of the poor would be only temporarily improved; in a very short time they would begin to raise larger families, with the result that the last state of their class would be as bad as the first. In the second edition of his work Malthus advocated postponement of marriage as a means of relief, but he continued to stress the danger that population would outrun any possible increase in the means of subsistence.

T. R. Malthus

The main teachings of Malthus were taken over and elaborated by David Ricardo (1772–1823), one of the keenest if not one of the broadest intellects of the nineteenth century. Ricardo was an English Jew who embraced Christianity at the age of twenty-one and married a Quaker. By the time he was twenty-five he had accumulated a fortune on the Stock Exchange and soon became one of the richest men in Europe. As an economist Ricardo is famous, first of all, for his subsistence theory of wages. According to this theory, wages tend toward a level which is just sufficient to enable the workers "to subsist and perpetuate their race, without either increase or diminution." This he held to be an iron law, from which there is no escape. If wages should rise temporarily above the subsistence standard, the population would increase, and the ensuing competition for jobs would quickly force the rate of pay down to its former level. Like the Malthusian law upon which it was based, this theory failed to recognize that families with a rising standard of living tend to limit the number of their offspring. Ricardo is noted, in the second

David Ricardo

place, for his teachings in regard to rent. He maintained that rent is determined by the cost of production on the poorest land that must be brought under cultivation, and that consequently as a country fills up with people an ever-increasing proportion of the social income is taken by the landlords. Though a great proprietor himself, he denounced the recipients of rent as the real enemies of both the capitalists and the workers. Finally, Ricardo is important for his labor theory of value, which influenced one of the main doctrines of the Marxian socialists. However, he attached some significance also to the role of capital in determining value—an idea which was abhorrent to Marx.

James Mill

In his later years Ricardo frequently associated himself with an interesting group of reformers in England known as the philosophical radicals. Their leaders included such prominent figures as Jeremy Bentham, James Mill, the historian George Grote, and the political scientist John Austin. The foremost economist among them was James Mill (1773–1836), who, as has already been mentioned, enjoyed some reputation as a Utilitarian philosopher. While the teachings of James Mill would now be considered far from radical, they were nevertheless liberal enough to show that the classical economics was not hopelessly benighted and reactionary. The doctrines he incorporated in his *Elements of Political Economy* included the following: (1) the chief object of practical reformers should be to prevent the population from growing too rapidly, on the assumption that the wealth available for productive purposes does not naturally increase as fast as the number of inhabitants; (2) the value of commodities depends entirely upon the quantity of labor necessary to produce them; and (3) the unearned increment of land, or the increase in the value of land which comes exclusively from social causes, such as the building of a new factory in the vicinity, should be heavily taxed by the state. This last doctrine, based upon Ricardo's theory of rent, was destined for a wide popularity in England. In modified form it became part of the gospel of the Liberal party in the early 1900's, and it was a feature of the celebrated Lloyd George budget of 1909.

Nassau Senior

Probably the ablest of the classical economists who came after Ricardo was Nassau William Senior (1790–1864). The first professor of political economy at Oxford, he was also a distinguished lawyer and served on a number of royal commissions. Like most of his predecessors, Senior regarded economics as a deductive science. He maintained that its truths could all be derived from a limited number of great abstract principles. Fortunately he did not always adhere to this method himself, particularly in dealing with questions only partly economic in character. Thus, while he upheld the principle of *laissez faire*, he advocated an increasing amount of governmental interference in such matters as health, housing, and education. His main contribution was his theory that *abstinence* creates

a title to wealth. He admitted that labor and natural resources are the primary instruments of value, but he contended that abstinence is a secondary instrument. Therefore he argued that the capitalist who has refrained from enjoying all of his wealth in order to accumulate a surplus for investment has a claim on the profits of production. His abstinence involves sacrifice and pain just as does the work of the laborer. Consequently it is unfair to give the entire reward to the latter. The evil reputation of Senior comes primarily from the fact that he condemned the demands of the trade unions for a reduction of the working day. He had an honest but mistaken conviction that the whole net profit of an industrial enterprise is derived from the last hour of operation. Hence to shorten the working day would eliminate profits and thereby result in closing the factories. For this doctrine he was dubbed by his critics "Last Hour" Senior.

Opponents of the classical economics: (1) John Stuart Mill

Most of the leading classical economists or economic liberals were citizens of Great Britain. This was true partly because economic liberalism harmonized well with political liberalism, which was stronger in Britain than in any other European country; and partly because British industrialists were beginning to perceive notable advantages from a policy of free trade with the rest of the world. On the Continent of Europe, however, conditions were entirely different. There the old traditions of strong government still lingered. Moreover, Continental manufacturers were attempting to build up industrial establishments which would be able to compete with the British. To achieve this, it was desirable to have the patronage and protection of the state. Hence we should not be surprised to find that the majority of the opponents of economic liberalism were natives of Continental countries. Nevertheless, at least one of its abler critics was an Englishman—the brilliant Utilitarian philosopher, John Stuart Mill (1806–1873). Though Mill as an economist is often considered a member of the classical school, he actually repudiated a number of its most sacred premises. First, he rejected the universality of natural law. He admitted that there are unchangeable laws governing the field of production, but he insisted that the distribution of wealth can be regulated by society for the benefit of the majority of its members. Second, he advocated more radical departures from *laissez faire* than any recommended by his forerunners. He did not oppose legislation under certain conditions for shortening the working day, and he believed that the state might properly take certain preliminary steps toward the redistribution of wealth by taxing inheritances and by appropriating the unearned increment of land. In the fourth book of his *Principles of Political Economy* he urged the abolition of the wage system and looked forward to a society of producers' co-operatives in which the workers would own the factories and elect the managers to run them. On the other hand, it should not be forgotten that Mill

was too much of an individualist ever to go very far in the direction of socialism. He distrusted the state, and his real reason for advocating producers' co-operatives was not to exalt the power of the proletariat but to give to the individual worker the fruits of his labor.

(2) Friedrich List

The most noted of the German economists who wrote in direct opposition to the theories of the classical school was Friedrich List (1789–1846), who derived inspiration for some of his ideas from seven years' residence in America. List condemned the doctrines of *laissez faire* and freedom of international trade. Contending that the wealth of a nation is determined less by natural resources than by the productive powers of its citizens, he declared that it is the duty of governments to further the arts and sciences and to see to it that every individual makes the most of his talents in co-operating for the general good. He stressed the well-rounded development of the nation as all-important regardless of the effects upon the immediate fortunes of particular citizens. Holding that manufactures are essential to such a development, he demanded protective tariffs until the new industries should be able to compete with those of any other country. List was the forerunner of a long line of German economists who proposed to make the state the guardian of the production and distribution of wealth. Their object was less that of justice to the individual than the idea of consolidating the unity and increasing the strength of the nation. They believed that the government should not only impose protective tariffs, but should regulate and plan the development of industry so as to balance production and consumption. In general, their ideas represented a mixture of economic nationalism and collectivism, and thereby furnished a basis for some later German developments.

(3) the utopian socialists

We come next to a group of theorists who were more interested in social justice than in discovering economic laws or in laying the foundations of national prosperity. The earliest exemplars of this more radical attitude were the utopian socialists, who take their name from the fact that they proposed idealistic schemes for co-operative societies, in which all would work at their appropriate tasks and share the results of their common efforts. To a considerable extent the utopian socialists were the heirs of the Enlightenment. Like the philosophers of that movement they believed that all crime and greed were the results of an evil environment. If men could be freed from vicious custom and from a social structure which facilitates enslavement of the weak by the strong, then all might live together in harmony and peace. Accordingly, the utopian socialists recommended the establishment of model communities, largely self-contained, where most of the instruments of production would be collectively owned, and where government would be mainly on a voluntary basis. Among the original propagators of such plans was the Frenchman Charles Fourier (1772–1837), but

the sanest and most realistic of them all was Robert Owen (1771–1858). A native of Wales, Owen rose from an artisan apprentice to co-proprietor and manager of a great cotton mill at New Lanark in Scotland. Here he built new houses for his workers, reduced their hours of work from fourteen to ten, and established free schools for their children. The severe depression which followed in the wake of the Napoleonic wars convinced him that the economic order was in urgent need of reform. Like many others since his day, he concluded that the profit system was the cause of all the trouble. The existence of profit, he maintained, makes it impossible for the worker to buy the things he has produced. The result is overproduction, periodic crises, and unemployment. As a solution, Owen proposed the organization of society into co-operative communities, in which the sole reward to each member would be payment in proportion to his actual hours of labor. A number of such communities were actually set up, the most famous being the ones at Orbiston, Scotland, and New Harmony, Indiana. For a variety of reasons all of them failed within a very short time.

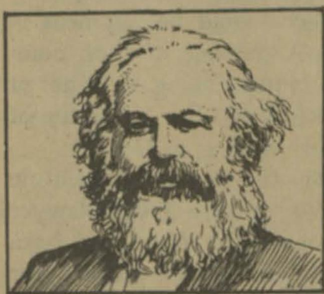
(4) the Marxian socialists

A more influential form of socialism was the so-called "scientific socialism" of Karl Marx (1818–1883). The son of a Jewish lawyer who had turned Christian for professional reasons, Marx was born at Trèves near Coblenz in the Rhineland. His father planned for him a career as a conventional bourgeois lawyer and, with that end in view, sent him to the University of Bonn. But young Marx soon displayed a distaste for the law and abandoned his legal studies for the pursuit of philosophy and history. After a year at Bonn he went to the University of Berlin, where he fell under the influence of a group of disciples of Hegel who were giving the teachings of their master a slightly radical twist. Though Marx earned the degree of doctor of philosophy at the University of Jena in 1841, his critical views prevented him from realizing his ambition of becoming a university professor. He turned to journalism, editing various radical periodicals and contributing articles to others. In 1848 he was arrested on a charge of high treason for participating in the revolutionary movement in Prussia. Though acquitted by a middle-class jury, he was soon afterward expelled from the country. In the meantime he had formed an intimate friendship with Friedrich Engels (1820–1895), who remained his lifelong disciple and *alter ego.* In 1848 the two men issued the *Communist Manifesto*, the "birth cry of modern socialism." From then until his death in 1883 Marx spent nearly all of his years in London, struggling against poverty, occasionally writing a few articles (some of which he sold to the New York *Tribune* for five dollars apiece), but giving most of his time to poring over dusty manuscripts in the British Museum, from morning until midnight, gathering material for a great work on political economy. In 1867 he published the first volume of this work under the title of *Das Kapital.* Two other volumes were issued

after his death from manuscripts revised and edited by some of his disciples.

The doctrines of Karl Marx

Not all of the teachings of Karl Marx were entirely original. For some of his ideas he was indebted to Hegel; for others to the French socialist, Louis Blanc (1811–1882), and probably to Ricardo. Nevertheless, it was Marx who first combined these ideas into a comprehensive system and gave them full-bodied meaning as an explanation of the facts of political economy. Since Marxist theory has been one of the most influential bodies of thought in modern times, it is necessary to understand its doctrines. Fundamental among them are the following:



Karl Marx (1818–1883). The photograph shows the prophet of socialism at the peak of his career, in the 1870's.

The economic interpretation of history

(1) The economic interpretation of history. All of the great political, social, and intellectual movements of history have been determined by the economic environment out of which they arose. Marx did not insist that the economic motive is the sole explanation of human behavior, but he did maintain that every fundamental historical development, regardless of its character on the surface, has been the result of alterations in methods of producing and exchanging goods. Thus the Protestant Revolution was essentially an economic movement; the disagreements over religious belief were mere "ideological veils," concealing the actual causes.

Dialectical materialism

(2) Dialectical materialism. Every distinct economic system, based upon a definite pattern of production and exchange, grows to a point of maximum efficiency, then develops contradictions or weaknesses within it which produce its rapid decay. Meanwhile the foundations of an opposing system are being gradually laid, and eventually this new system displaces the old, at the same time ab-

sorbing its most valuable elements. This dynamic process of historical evolution will continue by a series of victories of the new over the old, until the perfect goal of communism has been attained. After that there will doubtless still be change, but it will be change within the limits of communism itself.

(3) The class struggle. All history has been made up of struggles between classes. In ancient times it was a struggle between masters and slaves and between patricians and plebeians; in the Middle Ages it was a conflict between guild-masters and journeymen and between lords and serfs; now it has been narrowed down to a struggle between the class of capitalists and the proletariat. The former includes those who derive their chief income from *owning* the means of production and from exploiting the labor of others. The proletariat includes those who are dependent for their living primarily upon a wage, who must sell their labor power in order to exist.

The class struggle

(4) The doctrine of surplus value. All wealth is created by the worker. Capital creates nothing, but is itself created by labor. The value of all commodities is determined by the quantity of labor power necessary to produce them. But the worker does not receive the full value which his labor creates; instead he receives a wage, which ordinarily is just enough to enable him to subsist and reproduce his kind. The difference between the value the worker produces and what he receives is *surplus value*, which goes to the capitalist. In general, it consists of three different elements: interest, rent, and profits. Since the capitalist creates none of these things, it follows that he is a robber, who appropriates the fruits of the laborer's toil.

Surplus value

(5) The theory of socialist evolution. After capitalism has received its death blow at the hands of the workers, it will be followed by the stage of socialism. This will have three characteristics: the dictatorship of the proletariat; payment in accordance with work performed; and ownership and operation by the state of all means of production, distribution, and exchange. But socialism is intended to be merely a transition to something higher. In time it will be succeeded by communism, the perfect goal of historical evolution. Communism will mean, first of all, the classless society. No one will live by owning, but all men solely by working. The state will now disappear; it will be relegated to the museum of antiquities, "along with the bronze ax and the spinning wheel." Nothing will replace it except voluntary associations to operate the means of production and provide for social necessities. But the *essence* of communism is payment in accordance with needs. The wage system will be completely abolished. Each citizen will be expected to work in accordance with his faculties and will be entitled to receive from the total fund of wealth produced an amount in proportion to his needs. This is the acme of justice according to the Marxist conception.

Socialist evolution

The influence of Marx

The influence of Karl Marx upon the nineteenth and twentieth centuries can only be compared with that of Voltaire or Rousseau upon the eighteenth. His doctrine of the economic interpretation of history is a popular theory even among historians who are not his own followers. He numbers his disciples in every civilized nation of this planet and in a great many backward countries besides. In Russia he is almost a god, where his dogma of dialectical materialism is accepted not only as a foundation of economics but as a test to which science, philosophy, art, and literature must also conform. In every industrialized nation before World War I there was a socialist political party of considerable importance, the one in Germany having the largest representation in the Reichstag after 1912. Nearly everywhere the growth of socialism was a vital influence in furthering the enactment of social insurance and minimum wage laws and in promoting taxation of incomes and inheritances for the purpose of redistributing wealth. Marx, of course, was not interested in these things as ends in themselves, but the ruling classes were eventually persuaded to adopt them as a convenient tub to be thrown to the socialist whale. Socialists have also quite generally lent their support to the co-operative movement, to government ownership of railroads and public utilities, and to innumerable schemes for protecting workers and consumers against the power of monopoly capitalism.

Revisionists and strict Marxists

Toward the end of the nineteenth century the followers of Marx split into two factions. The majority in most countries adhered to the doctrines of a sect known as the revisionists, who, as their name implies, believed that the theories of Marx should be *revised* to bring them into line with changing conditions. The other faction was made up of the strict Marxists, who insisted that not one jot or tittle of the master's teachings should be modified. In addition to this cleavage in general attitude there were also specific differences. Whereas the revisionists advocated the attainment of socialism by peaceful and gradual methods, the strict Marxists were revolutionists. The revisionists concentrated their attention upon immediate reforms, with the slogan, "Less for the better future and more for the better present"; the strict Marxists demanded the dictatorship of the proletariat or nothing. The leaders of the majority faction were willing to recognize the interests of separate nations; they were prone to talk about duty to the fatherland, and they frequently supported the demands of their governments for increased armaments and for lengthened terms of military service. The strict Marxists, on the other hand, were uncompromising internationalists; they held to the contention of Marx that the world proletariat is one great brotherhood, and they frowned upon patriotism and nationalism as capitalist devices to throw dust in the eyes of the workers. On the whole, it was the revisionists who gained control of the socialist parties in the majority of Western nations. The

Social Democratic party in Germany, the Unified Socialist party in France, and the Socialist party in the United States were all very largely dominated by the moderate faction. In Britain leadership of the Labor party was supplied in most cases by the Fabian socialists, so named from their policy of delay in imitation of the tactics of Fabius, a Roman general in the wars against Carthage. About 1918 most of the strict Marxists withdrew altogether from the socialist parties and have since been known generally as communists. But "strict Marxism" in its communist form has often shown a tendency in recent years to abandon the internationalism of Marx and to glorify patriotism and defense of the fatherland. This was particularly true of Russia and some of her satéllites during World War II and the years following.

Anarchism

Many of the social idealists of the nineteenth and early twentieth centuries were torn between the desire to improve the welfare of society by collectivist means and the hope of gaining for the individual a maximum of personal freedom. We have seen that even the Marxists proposed eventually to abolish the state. But the collectivist-individualist dilemma received much more attention from the anarchists. Strictly defined, anarchism means opposition to all government based upon force. The followers of this philosophy have generally conceded that some form of social organization would be necessary, but they condemn the coercive state as absolutely incompatible with human liberty. As to the problem of what should be done with the economic system, the anarchists have sharply disagreed. Some have been pure individualists, holding that man's right to acquire and use property should be subject only to the laws of nature. The father of anarchism, William Godwin (1756–1836), believed that if the land were made as free as the air, no further change in the economic structure would be necessary. In the judgment of the French anarchist, Pierre Proudhon (1809–1865), an arrangement whereby society would provide every man with free and unlimited credit would be a sufficient means of insuring economic justice. Such a plan, he thought, would prevent anyone from monopolizing the resources of the earth and would guarantee to the citizen who was thrifty and industrious the full reward of his labors.

The collectivistic anarchists: Bakunin and Kropotkin

But the first of the anarchists to exert much influence were those who combined their hatred of the state with a definite philosophy of collectivism. Foremost among them were the three great Russian aristocrats, Mikhail Bakunin (1814–1876), Peter Kropotkin (1842–1921), and Leo Tolstoi (1828–1910). Though often classified as a communistic anarchist, Bakunin was really much closer to socialism. Indeed, for a time he was associated with the followers of Marx in the International Workingmen's Association, organized in London in 1864. His program for a new society included collective owner-

ship of the means of production, abolition of surplus value, and payment in accordance with work performed. In other words, it was much like that of the socialist stage of the Marxists, except, of course, that it did not involve the preservation of the state. Bakunin is also famous as the father of terroristic anarchism. Advocating the overthrow of the state and of capitalism by violence, he inspired what later came to be called "propaganda by the deed"—that is, attracting attention to the anarchist cause by murdering a few prominent public officials and hated exploiters. It was followers of Bakunin who were alleged to have been responsible for assassinating President McKinley, President Carnot of France, and King Humbert I of Italy. But the more intelligent anarchists of the collectivist school condemned these tactics. For example, Prince Kropotkin denounced the use of individual violence under any conditions. He believed that a final revolutionary effort would be necessary, but he certainly preferred that the state should be weakened by peaceful methods, by gradually convincing people that it is an unnecessary evil, that it breeds wars, and that it exists primarily to enable some men to exploit others. From the standpoint of economic reform, Kropotkin was a communist. He insisted that all property except articles of personal use should be socially owned, and that payment should be on the basis of need.

Leo Tolstoi

The most noted of all the collectivistic anarchists, and one of the most interesting figures of modern times, was Count Leo Tolstoi. Best known for his novels, which will be discussed in a later connection, Tolstoi was also one of the greatest of Russian philosophers. His ideas were born of strenuous emotional conflict and of an almost despairing search for a way of life which would satisfy his restless intellect. He indulged for a time in fashionable dissipation, attempted to relieve his troubled mind by philanthropic activities, and then finally abandoned it all for the life of a simple peasant. He came to the conclusion that no progress could be made in remedying the ills of society until the upper classes should renounce their privileges and adopt the humble existence of men who toil for their bread. But this would be only a beginning. In addition, all selfish individualism must disappear, all wealth must be surrendered to a common fund, and all agencies of force must be abolished. Tolstoi based much of his philosophy upon the New Testament, especially upon the Sermon on the Mount. He found in Jesus' teachings of meekness, humility, and non-resistance the essential principles of a just society. Above all, he condemned the use of violence, regardless of the purpose for which it is employed. Violence brutalizes man; it places its user in the hands of his enemies; and, as long as force is available as a weapon, reliance upon civilized methods is almost impossible. Some further words of Tolstoi on this subject may well be quoted:

"When a government is overthrown by violence and the authority passes into other hands, this new authority is by no means likely to be less oppressive than the former. On the contrary, obliged to defend itself from its exasperated and overthrown enemies, it will be even more cruel and despotic than its predecessor, as has ever been the case in periods of revolution . . . whichever party gains the upper hand, it will be forced in order to introduce and maintain its own system not only to avail itself of all former methods of violence but to invent new ones as well." [1]

Syndicalism

A third of the great radical philosophies produced by the Industrial Revolution was syndicalism, whose chief exponent was Georges Sorel (1847–1922). Syndicalism demands the abolition of both capitalism and the state and the reorganization of society into associations of producers. It resembles anarchism in its opposition to the state; but whereas the anarchist demands the abolition of force, the syndicalist would retain it, even after the state has been destroyed. Syndicalism also resembles socialism in that both would involve collective ownership of the means of production; but instead of making the state the owner and operator of the means of production, the syndicalist would delegate these functions to associations of producers. Thus all the steel mills would be owned and operated by the workers in the steel industry, the coal mines by the workers in the coal industry, and so on. Further, these associations or syndicates would take the place of the state, each one governing its own members in all of their activities as producers. In all other matters the workers would be free from interference. There would, of course, be no laws regulating morals or religion, for syndicalism is a thoroughly materialistic philosophy. On the other hand, its founders entertained no illusions as to the capacity of the masses for self-government. Sorel regarded the average man as very much of a sheep, fit only to be a follower. He believed, therefore, that the ruling authority in the syndicates should be exercised quite frankly by the intelligent few. The other most important ingredient in syndicalist theory is the doctrine of direct action. By this is meant the opposite of political action and may be taken to include the general strike and sabotage, the latter being any kind of crippling activity designed to injure the capitalist employer. The influence of syndicalism has been confined very largely to the Latin countries of Europe and to the United States. In France it was exceedingly popular for a time in the C.G.T. (General Confederation of Labor). In Italy its doctrines of minority rule, direct action, and the organization of society into syndicates were taken over in modified form by the Fascists. In America many elements of the syndicalist philosophy were adopted by the I.W.W. (In-

[1] *The Kingdom of God Is Within You*, p. 183.

dustrial Workers of the World), an organization flourishing from about 1905 to 1920.

Christian socialism

Last of all, we must not overlook the Christian socialists, the least radical among all the critics of capitalist economics. The founder of Christian socialism was Robert de Lamennais (1782–1854), a French Catholic priest who sought to revive the Christian religion as an aid to reform and social justice. Similar ideas were expressed by Count Henri de Saint-Simon (1760–1825) in his *New Christianity*. From France the movement spread to England and was adopted by a number of Protestant intellectuals, especially by the novelist Charles Kingsley (1819–1875). In its early days Christian socialism was little more than a demand for application of the teachings of Jesus to the problems created by industry, but in later years it began to assume more tangible form. In 1891 Leo XIII, "the workingman's Pope," issued his famous encyclical *Rerum novarum*, in which he revived with a modern slant the liberal economic attitude of St. Thomas Aquinas. Though the encyclical expressly recognized private property as a natural right and vigorously repudiated the Marxist doctrine of the class war, at the same time it strongly discountenanced unlimited profits. It appealed to employers to respect the dignity of their workers as men and as Christians and not to treat them as "chattels to make money by, or to look upon them merely as so much muscle or physical power." By way of specific proposals to mitigate the harshness of the industrial regime, it recommended factory legislation, the formation of labor unions, an increase in the number of small landowners, and limitation of hours of employment.[1] The issuance of this encyclical gave a mighty impulse to the growth of Christian socialism among liberal Catholics. In European countries before World War I, Catholic parties frequently played an active role, sometimes in combination with the moderate Marxists, in furthering the movement for social legislation. This was especially true of the Center party in Germany, the Christian Socialist party in Austria, and the Liberal Action party in France.

[1] The substance of Leo's encylical was reaffirmed in 1931 by Pope Pius XI in a new encyclical, *Quadragesimo Anno*.

CHAPTER 20

Intellectual and Artistic Progress during the Age of Democracy and Nationalism

The character of the new intellectual revolution

Reference is commonly made to the advancement of learning in the seventeenth and eighteenth centuries as the Intellectual Revolution. It would be just as accurate to apply this term to the intellectual progress between 1830 and 1914. Never before in so short a time had the mind of man yielded discoveries and provocative ideas in such profusion. And certainly a large proportion of these were quite as revolutionary in their effects as any that had come down from the past. But in several respects the intellectual revolution from 1830 to 1914 was different from that of the seventeenth and eighteenth centuries. For one thing, the deductive or rationalist tradition was now almost entirely dead. And the decay of rationalism was reflected in a marked decline in the relative importance of philosophy. Indeed, in the new age philosophy was often little more than an echo of science. It was not that the problems of the universe had finally been solved, or that men had lost the ability to think, but rather that the sciences had come to be accepted as the only worthwhile sources of knowledge. To be sure, there were some seekers of wisdom who rebelled against the new tendency; but there were few who had the hardihood to advocate a revival of pure deduction or the viewpoint of the mystic in discovering truth. In other words, the victory of empiricism, or that philosophy which derives its truths from concrete experience rather than from abstract reasoning, was almost complete.

1. The Heyday of Science

The nature and causes of the tremendous scientific progress

As compared with all preceding epochs, the period from 1830 to 1914 marked the zenith of scientific progress. The attainments of this period were not only more numerous, but they probed more deeply into the hidden mysteries of things and revealed the nature of the world and of man in a hitherto unsuspected light. Each of the older branches of science was greatly developed, and a dozen or more new ones were added to the list. The phenomenal scientific progress of this era was the result of various factors. It was due in some measure to the stimulus of the Industrial Revolution, to the rising standard of living, and to the desire for comfort and pleasure. But

to think of modern science as essentially a species of practical knowledge is to misunderstand its import. The contemporary pure physicist or chemist is no more concerned with problems of the workaday world than was St. Thomas Aquinas or Albert the Great. In fact, pure science occupies a position in the modern age somewhat similar to that of Scholasticism in the thirteenth century. It is at once a substitute for logic as a discipline for the mind and an expression of an insatiable desire for the conquest of all knowledge, for an intellectual mastery of the universe. The Scholastic philosopher employed altogether different methods, but his aims and his hopes were the same.

Explanations of organic evolution: the hypothesis of Lamarck

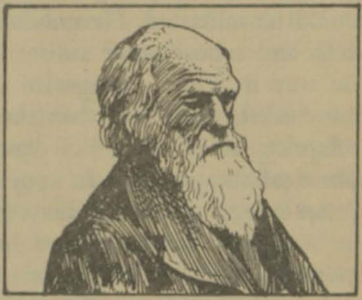
While none of the sciences was neglected between 1830 and 1914, it was the biological sciences and medicine which underwent the greatest development. The outstanding achievement in biology was the development of new explanations of the theory of organic evolution. We have seen that this theory was at least as old as Anaximander in the sixth century B.C., and that it was accepted by many of the great minds of antiquity. We have learned also that it was revived in the eighteenth century by the philosopher Holbach, by the poet Goethe, and by the scientists Buffon and Linnaeus. But none of these men offered much proof or explained how the process of evolution works. The first to develop a systematic hypothesis of organic evolution was the French biologist, Jean Lamarck (1744–1829). The essential principle in Lamarck's hypothesis, published in 1809, is the inheritance of acquired characteristics. He maintained that an animal, subjected to a change in environment, acquires new habits, which in turn are reflected in structural changes. These acquired characteristics of body structure, he believed, are transmissible to the offspring, with the result that after a series of generations a new species of animal is eventually produced. Lamarck's successors found little evidence to confirm this hypothesis, but it dominated biological thought for upwards of fifty years. Though still not absolutely discredited, it is admitted to have no more than a partial validity.

Charles Darwin

A much more scientific hypothesis of organic evolution was that of Charles Darwin, published in 1859. Darwin was born in 1809, the son of a small-town physician. Though he lived to be seventy-three, he was of frail constitution, and during most of his adult life he seems never to have enjoyed a day of the health of ordinary men. In accordance with his father's wish, he began the study of medicine at Edinburgh, but soon withdrew and entered Cambridge to prepare for the ministry. Here he gave most of his time to natural history and was graduated only tenth in his class among those not seeking honors. In 1831 he obtained an appointment as naturalist without pay on H.M.S. *Beagle*, which had been chartered for a scientific expedition around the world. The voyage lasted nearly five years and gave Darwin an unparalleled opportunity to become acquainted at

first hand with the manifold variations of animal life. He noted the differences between animals inhabiting islands and related species on near-by continents and observed the resemblances between living animals and the fossilized remains of extinct species in the same locality. It was a magnificent preparation for his life's work. Upon returning from the voyage he happened to read Malthus' *Essay on Population* and was struck by the author's contention that throughout the world of nature many more individuals are born than can ever survive, and that consequently the weaker ones must perish in the struggle for food. Finally after twenty more years of careful and extensive research he issued his *Origin of Species*, which has probably done as much to influence modern thinking as any other single book ever written.

Darwin's hypothesis as contained in his *Origin of Species* (1859) is known as the hypothesis of natural selection. This involves the



Charles Darwin (1809–1882). More than anyone else, Charles Darwin, shown here in his later years, personified the scientific revolution of the Nineteenth Century.

The Darwinian hypothesis of natural selection

idea that it is nature, or the environment, which selects those variants among the offspring that are to survive and reproduce. Darwin pointed out, first of all, that the parents of every species beget more offspring than can possibly survive. He maintained that, consequently, a struggle takes place among these offspring for food, shelter, warmth, and other conditions necessary for life. In this struggle certain individuals have the advantage because of the factor of *variation*, which means that no two of the offspring are exactly alike. Some are born strong, others weak; some have longer horns or sharper claws than their brothers and sisters or perhaps a coloration of body which enables them better to blend with their surroundings and thus to elude their enemies. It is these favored members of the species that win out in the struggle for existence; the others are eliminated generally before they have lived long enough to reproduce. While Darwin assumed like Lamarck that acquired

characteristics could be inherited, he did not consider them of fundamental importance in evolution. He regarded variation and natural selection as the primary factors in the origin of new species. In other words, he taught that individuals with favorable characteristics would transmit their inherited qualities to their descendants through countless generations, and that successive eliminations of the least fit would eventually produce a new species. Finally, it should be noted that Darwin applied his concept of evolution not only to plant and animal species but also to man. In his second great work, *The Descent of Man* (1871), he attempted to show that the human race originally sprang from some apelike ancestor, long since extinct, but probably a common forebear of the existing anthropoid apes and man.

Improvement of the Darwinian hypothesis by Weismann and De Vries

The Darwinian hypothesis was elaborated and improved by several later biologists. About 1890 the German August Weismann (1834–1914) flatly rejected the idea that acquired characteristics could be inherited. He conducted experiments to show that body cells and reproductive cells are entirely distinct, and that there is no way in which changes in the former can affect the latter. He concluded, therefore, that the only qualities transmissible to the offspring are those which have always been present in the germ plasm of the parents.[1] In 1901 the Dutch botanist, Hugo De Vries (1848–1935), published his celebrated mutation hypothesis, based in large part upon laws of heredity discovered by the Austrian monk, Gregor Mendel (1822–1884). De Vries asserted that evolution results not from minor variations, as Darwin had assumed, but from radical differences or mutations, which appear in more or less definite ratio among the offspring. When any of these mutations are favorable to survival in a given environment, the individuals possessing them naturally emerge triumphant in the struggle for existence. Not only do their descendants inherit these qualities, but from time to time new mutants appear, some of which are even better adapted for survival than their parents. Thus in a limited number of generations a new species may be brought into existence. The mutation theory of De Vries corrected one of the chief weaknesses in the Darwinian hypothesis. The variations which Darwin assumed to be the source of evolutionary changes are so small that an incredibly long time would be necessary to produce a new species. De Vries made it possible to conceive of evolution as proceeding by sudden leaps.

Next to the exposition and proof of organic evolution, the most

[1] The teachings of Weismann, while generally accepted by scientists of the present day, are taken with certain reservations. It has been shown that germ cells are not entirely insulated from the rest of the body as Weismann taught. It is admitted also that they are not absolutely stable but appear to be subject, under certain conditions, to parallel modifications at the same time that other parts of the body are affected.

important biological achievement was probably the development of the cell theory. The cellular structure of plants had already been described by Robert Hooke in the seventeenth century, but it was left for the German biologist, Theodor Schwann (1810–1882), to draw the full implications from Hooke's discovery. Schwann pointed out about 1835 that not only plants but animals also are composed of cells, and that all but the simplest of living things grow and mature by the division and multiplication of these tiny structural units. A few years later it was discovered that all cells are composed of essentially the same combination of matter, to which Hugo von Mohl (1805–1872) gave the name *protoplasm*. Another of the important biological achievements of this period was the development of embryology. The father of the modern science of embryology was the German-Russian Karl Ernst von Baer (1792–1876), who about 1830 set forth his celebrated law of recapitulation. This law, which was subsequently elaborated by Ernst Haeckel (1834–1919), states that during the embryonic period each individual recapitulates or reproduces the various important stages in the life history of the species to which it belongs.

The cell theory and the development of embryology

Embryology was not the only subdivision of biology to be developed during the nineteenth century. The work of Schwann, von Mohl, and others led to the founding of cytology, or the scientific study of cells. About 1865 Louis Pasteur laid the basis for the science of bacteriology by his epochal attack upon the theory of spontaneous generation. Hitherto it had been commonly supposed that bacteria and other microscopic organisms originated spontaneously from water or from decaying vegetable and animal matter. Pasteur succeeded in convincing the scientific world that all existing forms of life, no matter how small, are reproduced only by living beings. This was his famous law of biogenesis (all known forms of life come from pre-existing life).

Cytology and bacteriology

Even more spectacular than the achievements in biology was the progress in medicine. Following the discovery of vaccination for smallpox by Jenner in 1796, the next great landmark in the development of modern medicine was the introduction of ether as a general anaesthetic. Credit for this achievement was formerly given to William T. G. Morton, a Boston dentist, but it is now known that a Georgia physician, Crawford W. Long, performed the earliest operation with the use of ether in 1842. This discovery not only diminished the anguish of the patient, but enabled the surgeon to take his time and thereby increased the number of successful operations. But still many people died as a consequence of the bungling practice of physicians. Mortality was especially high in obstetrical cases, until methods were discovered of controlling the possibilities of infection. In 1847 the Hungarian physician Ignaz Semmelweiss found out that by washing his hands in antiseptic solutions he could reduce the death rate in obstetrical operations by more than four-fifths. This

Landmarks of progress in medicine

discovery was extended to the whole field of surgical practice about 1865 by the Englishman Joseph Lister (1827–1912), who is considered the father of antiseptic surgery. Lister achieved sensational results in preventing infection by cleansing wounds and surgical instruments with carbolic acid and by introducing carbolized catgut for surgical sewings. He was rewarded by the British government with a baronetcy in 1883 and was elevated to the peerage in 1897.

The germ theory of disease

The most significant milestone of medical progress during the second half of the nineteenth century was undoubtedly the germ theory of disease. Probably no other single accomplishment has contributed so much to the conquest of the most deadly maladies which afflict mankind. The germ theory of disease was mainly the work of Louis Pasteur and Robert Koch. Pasteur had been practically certain of the germinal origin of disease ever since he had established his biogenetic law, but he was unable to convince the medical profession. Because he was a chemist, physicians were inclined to be scornful of his work, holding that he could know nothing of the sacred precincts of medicine. They admitted the existence of germs, but they regarded them as more probably the results of disease than the cause. The opportunity to prove the validity of the theory came with the spread of an epidemic of anthrax, a disease which was carrying off hundreds of thousands of cattle and sheep in Germany and in France. About 1875 Robert Koch (1843–1910), an obscure country physician of East Prussia, began a series of experiments to prove that anthrax was the result of the tiny rodlike organisms found in the blood of the diseased animals. He inoculated mice with this contaminated blood and noticed that they soon sickened and died. He made cultures of the germs, breeding them on potatoes, and found that the germs alone, when introduced into the bodies of animals, were just as deadly as the blood. Meanwhile Pasteur had also been engaged in researches on anthrax. In 1881 he was challenged by his medical opponents to make a public test on cattle. He divided the animals into two groups. Half of them he inoculated with weakened germs of anthrax, and the remainder he left untreated. A few days later he injected malignant germs into all of the cattle. To the discomfiture of his opponents, every one of the animals that had not been inoculated died, while all of the others survived. The theory that germs were the cause of the disease could no longer be disputed.

The conquest of diseases produced by germs

Once the germ theory was positively established, achievements in medicine multiplied rapidly. The talents of Pasteur and Koch were still by no means exhausted. The former in 1885 evolved a method of treating persons afflicted with hydrophobia, one of the most horrible diseases known to humanity. As a result of this accomplishment, the death rate from a malady hitherto almost always fatal was reduced to less than 1 per cent. In 1882 Robert Koch discovered the bacilli of tuberculosis and of Asiatic cholera. Within a

few years the germs of yet other diseases were isolated—of diphtheria, of the bubonic plague, of lockjaw, and of sleeping-sickness. For the prevention and treatment of several of these diseases, antitoxins or serums were developed, the first being the diphtheria antitoxin produced in 1892 by Emil von Behring (1854–1917). About the end of the century effective means of combating malaria and yellow fever were made possible by the discovery that both are spread by particular varieties of mosquitoes. Much advancement was made also in the treatment of syphilis. After the germ had been identified in 1905, August von Wassermann devised a test for revealing its presence in the human body. In 1910 Paul Ehrlich developed a new drug, known as salvarsan, which proved to be an efficient specific for the disease in its primary and secondary stages. Still later the Austrian pathologist Julius Wagner von Jauregg found out that a fever temperature induced by malaria or by other means has remarkable effects in alleviating advanced stages of the disease, such as syphilis of the brain or paresis.

The discovery of hormones and vitamins

Finally, it should be noted that by the outbreak of World War I a beginning had been made in the study of the ductless glands and in the discovery of the vitamins. The first step toward an understanding of the ductless or endocrine glands was taken in 1901 when the Japanese scientist Takamine isolated adrenalin, secreted by the suprarenal glands, and showed that it was useful in regulating the action of the heart. About 1912 it was revealed that the pituitary gland yields a substance vitally necessary for the proper growth of the body. These discoveries paved the way for a considerable development of glandular therapy in more recent years, including methods of curing certain forms of idiocy by supplementing the hormone secretion of the thyroid gland. On the eve of World War I it was demonstrated by a British biochemist that a healthful diet requires not merely starches, fats, sugars, and proteins but "accessory factors" found only in particular foods. These factors were soon named vitamins, and research was begun to determine their character. In 1915 an American scientist at Johns Hopkins, E. V. McCollum, proved that there are at least two vitamins: Vitamin A, contained in butter, egg yolks, and fish-liver oils; and Vitamin B, which is found most abundantly in yeast, lean meats, whole cereals, and green vegetables. Later investigations have disclosed the existence of at least twenty of these mysterious substances, all of them essential to growth or to the prevention of disease. The discovery of the vitamins has been especially significant in the conquest of illnesses of malnutrition, such as beri-beri, scurvy, and rickets.

Achievements in the physical sciences

The record of attainment in the physical sciences is somewhat less impressive until practically the final quarter of the nineteenth century. Nevertheless, three achievements stand out in the earlier period. About 1810 the English Quaker schoolmaster, John Dalton (1766–1844), revived the atomic theory of matter and defended

it so assiduously that it was soon adopted as a basic premise of scientific thought. In 1847 Hermann von Helmholtz (1821–1894) formulated the principle of the conservation of energy, or the first law of thermodynamics. This law states that the total energy in the universe is constant, that it can be changed from one form into another but can neither be created nor destroyed. In 1851 came the second law of thermodynamics, or the law of the dissipation of energy. Explained systematically for the first time by William Thomson (Lord Kelvin), this law maintains that, while the total energy of the universe remains constant, the amount of *useful* energy is being steadily diminished. Few discoveries have been more fruitful in influencing the conclusions of astronomers and also of certain philosophers.

Revolutionary discoveries in regard to light, electricity, and other forms of energy

Probably it would be safe to say that the period from about 1870 to 1914 surpassed all others since the age of Copernicus in the number of revolutionary developments in the physical sciences. Indeed, it may be doubted whether there was ever a period when so many time-honored scientific conceptions were seriously challenged or overthrown. First of all, there were some extensive revisions of older theories of light, electricity, and energy. About 1865 Clerk Maxwell (1831–1879) showed that light appears to behave in much the same way as electromagnetic waves. In 1887 the German physicist Heinrich Hertz proved the existence of high-frequency electric waves spreading through space with the velocity and other characteristics of light. The discovery of the X-ray by Wilhelm von Röntgen in 1895 led scientists to wonder whether similar rays might not be given off spontaneously in nature. This suspicion was confirmed by the discovery of uranium in 1896 and of the much more active element, radium, by Madame Curie two years later. About 1903 the British physicists, Ernest Rutherford and Frederick Soddy, developed their disintegration theory, explaining how various radioactive elements break down to form less complex elements, giving off at the same time emanations of electrical energy. The net result of these several discoveries was the conclusion that light, electricity, the X-ray, and all other forms of energy are essentially the same.

Revisions of the conception of matter

From this conclusion it was a comparatively easy step to fundamental revisions of the conception of matter. As early as 1892 Hendrik Lorentz advanced the contention that matter is not composed of solid, indivisible atoms as the Greeks and John Dalton had assumed, but that the atom itself is made up of smaller units of an electrical nature. About 1910 Ernest Rutherford and the Danish scientist, Niels Bohr, presented a picture of the atom as a kind of miniature solar system, composed of a nucleus containing one or more positively charged *protons* around which revolve a number of negatively charged *electrons*. As we shall see, this conception has been modified in more recent years, but its main implication still stands—that electricity is the fundamental constituent of matter.

The climax of the revolution in the physical sciences was reached with the publication of the Einstein theories. Originally issued in limited form in 1905, they were expanded into a more general application ten years later. Einstein challenged not merely the older conceptions of matter but practically the entire structure of traditional physics. The doctrine for which he is most noted is his principle of relativity. During the greater part of the nineteenth century, physicists had assumed that space and motion were absolute. Space was supposed to be filled with an intangible substance known as *ether*, which provided the medium for the undulations of light. The planets also moved in it like ships sailing in definite courses over the bounding main. The motion of the heavenly bodies was therefore to be measured by reference to this more or less static ether, just as the speed of a vehicle could be measured in terms of the distance traveled on a highway. But elaborate experiments performed by English and American physicists in 1887 virtually exploded the ether hypothesis. Einstein then set to work to reconstruct the scheme of the universe in accordance with an altogether different pattern.

The Einstein theories



Albert Einstein. From the portrait head by the noted American sculptor, Jo Davidson.

He maintained that space and motion, instead of being absolute, are relative to each other. Objects have not merely three dimensions but four. To the familiar length, breadth, and thickness, Einstein added a new dimension of *time* and represented all four as fused in a synthesis which he called the *space-time continuum*. In this way he sought to explain the idea that mass is dependent upon motion. Bodies traveling at high velocity have different proportions of extension and mass from what they would have at rest. Included also in the Einstein physics is the conception of a finite universe—that is, finite in space. The region of matter does not extend into infinity, but the universe has limits. While these are by no means definite boundaries, there is at least a region beyond which nothing exists. Space

Relativity and space-time

curves back upon itself so as to make of the universe a gigantic sphere within which are contained galaxies, solar systems, stars, and planets.

The founding of new social sciences

The years from 1830 to 1914 were characterized also by an extensive development of the social sciences. Most of these subjects are of comparatively recent origin. Before the nineteenth century nearly all of man's efforts to analyze his social environment were restricted to history, economics, and philosophy. The first of the new social sciences to be developed was sociology, originated by Auguste Comte (1798–1857) and elaborated by Herbert Spencer (1820–1903). Next came the founding of anthropology by James Prichard (1786–1848) and Sir Edward Burnett Tylor (1832–1917). Though sometimes defined very broadly as "the science of man," anthropology is more commonly restricted to such matters as man's physical evolution, the study of existing human types, and the investigation of prehistoric cultures and of primitive institutions and customs. About 1870 psychology was broken off from philosophy and cultivated as a separate science. Following its origin in Germany under the guidance of Wilhelm Wundt (1832–1920), it was expanded by the Americans William James (1842–1910) and G. Stanley Hall (1846–1924). It was given a new orientation in the 1890's by the work of the Russian Ivan Pavlov (1849–1936). By experiments with animals Pavlov discovered what is known as the conditioned reflex, a form of behavior in which natural reactions are produced by an artificial stimulus. He showed that if dogs were fed immediately following the ringing of a bell, they would eventually respond to the sound of the bell alone and secrete saliva exactly as if confronted by the sight and smell of the food. This discovery suggested the conclusion that the conditioned reflex is an important element in human behavior and encouraged psychologists to center their attention upon physiological experiment as a key to understanding the mind.

New types of psychology: (1) behaviorism

After the opening of the twentieth century, psychologists divided into a number of conflicting schools. A group of disciples of Pavlov inaugurated a type of physiological psychology known as behaviorism. Behaviorism is an attempt to study the human being as a purely physiological organism—to reduce all human behavior to a series of physical responses. Such concepts as *mind* and *consciousness* are relegated to the scrap heap as vague and meaningless terms. For the behaviorist nothing is important except the reactions of muscles, nerves, glands, and visceral organs. There is no such thing as an independent psychic behavior; all that man does is physical. Thinking is essentially a form of talking to oneself. Every complex emotion and idea is simply a group of physiological responses produced by some stimulus in the environment. Such was the extremely mechanistic interpretation of human actions offered by followers of Pavlov. Subject to a number of modifications, it still has

a strong appeal for those who believe that psychology should be as objective a science as physics or chemistry.

The other most important school of psychology to make its appearance after the turn of the century was psychoanalysis, founded by Sigmund Freud (1856–1939), an Austrian physician. Psychoanalysis interprets human behavior mainly in terms of the subconscious or unconscious mind. Freud admitted the existence of the conscious mind, but he avowed that the subconscious is much more important in determining the actions of the individual. He considered man as exclusively an egoistic creature propelled by basic urges of power, self-preservation, and sex. These urges are much too strong to be overcome; but inasmuch as society has branded their unrestrained fulfillment as sinful, they are commonly driven into the subconscious, where they linger indefinitely as suppressed desires. But they are seldom completely submerged; they rise to the surface in dreams, or they manifest themselves in lapses of memory, in fears and obsessions, and in various forms of abnormal behavior. Freud believed that most cases of mental and nervous disorders result from violent conflicts between natural instincts and the restraints imposed by an unfortunate environment. His investigations and the theories he evolved from them revolutionized the treatment of mental ailments and exerted a profound influence upon literature and the arts.

(2) psychoanalysis

....

Foundations of contemporary science

Most of the foundations of contemporary science were laid at the end of the nineteenth century and the beginning of the twentieth. It was during that period that the atom was portrayed as a miniature solar system instead of a solid particle, that the phenomenon of radioactivity was discovered, that the ether hypothesis was exploded, and that time and space were shown to be relative. It was during the same period that psychoanalysis was founded, that the germ theory of disease was fully confirmed, and that the laws of heredity were formulated. Scientific development during the years 1918–1958 was distinguished by equally revolutionary achievements, and none more revolutionary than the achievements in physics. By 1958 it had been discovered that the conception of the sub-atomic world as a miniature solar system was much too simple. The atom was found to contain not only positively charged protons and negatively charged electrons, but *positrons*, or positively charged electrons; *neutrons*, which carry no electric charges; and *mesons*, which may be either negative or positive. Mesons, it was discovered, not only exist within the atom (for about two millionths of a second) but are major components of the cosmic rays which are constantly bombarding the earth from somewhere in outer space. A recent hypothesis assumes the existence of a *neutral* meson which has a "life" of only one one-hundredth of a sextillionth of a second, but which, in disintegrating, is converted into the en-

ergy which holds the universe together.

The principle of indeterminacy

Even before the discovery of neutrons, positrons, and mesons the world within the atom had ceased, for many scientists, to be a world whose actions could be predicted on the basis of natural laws. In 1927 the German physicist Werner Heisenberg worked out his famous *principle of indeterminacy*, based upon his discovery that individual electrons do not appear to follow any definite laws of cause and effect, but jump from one orbit to another without apparent reason. He seemed therefore to be suggesting that the old mechanistic principle of universal causation was no longer entirely valid. The phenomena of the sub-atomic world could not be predicted with certainty but could be dealt with only in terms of *probability*, in essentially the same way as a life insurance company compiles actuarial statistics for millions of people. With the gradual acceptance of this hypothesis, the atom was reduced to a kind of "lawless abstraction" of which it was almost impossible to form a mental image.[1]

Releasing the energy within the atom

Several of the developments in physics outlined above helped to make possible one of the most spectacular achievements in the history of science, the splitting of the atom to release the energy contained within it. Ever since it became known that the atom is composed primarily of electrical energy, physicists had dreamed of unlocking this source of tremendous power and making it available for man. As early as 1905 Dr. Einstein became convinced of the equivalence of mass and energy and worked out a formula for the conversion of one into the other, which he expressed as follows: $E = mc^2$. E represents the energy in ergs, m the mass in grams, and c the velocity of light in centimeters per second. In other words, the amount of energy locked within the atom is equal to the mass multiplied by the square of the velocity of light. But no practical application of this formula was possible until after the discovery of the neutron by Sir James Chadwick in 1932. Since the neutron carries no charge of electricity, it is an ideal weapon for bombarding the atom. It is neither repulsed by the positively charged protons nor absorbed by the negatively charged electrons. Moreover, in the process of bombardment it produces more neutrons, which hit other atoms and cause them in turn to split and create neutrons. In this way the original reaction is repeated in an almost unending series.

Atomic fission

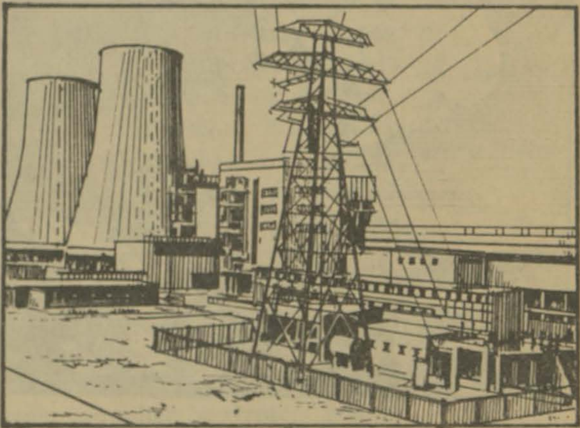
In 1939 two German physicists, Otto Hahn and F. Strassman, succeeded in splitting atoms of uranium by bombarding them with neutrons. The initial reaction produced a chain of reactions, in much the same way that a fire burning at the edge of a piece of

[1] It is noteworthy, however, that among the scientists who rejected this hypothesis was Dr. Einstein. He was reported, shortly before his death, to have expressed confidence that a new principle could be discovered which would reduce the whole universe to order and harmony.

paper raises the temperature of adjoining portions of the paper high enough to cause them to ignite. The potential of the neutrons employed in the splitting was only one-thirtieth of a volt, but the potential released was 200,000,000 volts. It was soon revealed that not all forms of uranium are equally valuable for the production of energy. Only the isotope 235, which forms only a tiny fraction of natural uranium, will split when bombarded with neutrons. Uranium 238, which constitutes over 99 per cent of the world supply, absorbs the neutrons and transmutes itself into neptunium and plutonium. The latter, however, behaves very much like uranium 235. That is, it does split and release great quantities of energy. More recently, the practice has developed of manufacturing plutonium in a structure known as an atomic pile, in which large quantities of uranium 238 are exposed to neutrons from uranium 235.

Releasing the energy within the atom

It is a sad commentary on modern civilization that the first use made of the knowledge of atomic fission was in the preparation of an atomic bomb. The devastating weapon was the achievement of a galaxy of scientists working for the War Department of the United States. Some were physicists who had been exiled by Nazi or Fascist oppression. By 1945 their work was completed, and in July of that year the first atomic bomb was exploded in a test conducted in the New Mexican desert near the War Department laboratory at Los Alamos. On August 6 the first atomic bomb used in warfare was dropped on the Japanese city of Hiroshima. A second bomb was unloaded on Nagasaki on August 9. The deadly effects of the new weapon almost passed belief. It was estimated that a single bomb had the explosive force of 20,000 tons of TNT. More than 100,000 people were killed in the two cities, large portions of which were literally wiped from the map. Man had at last acquired control over the basic substance of the universe, but whether he had created a Frankenstein's monster which might ultimately destroy him, no one could predict. Doleful queries were raised about what would hap-



Calder Hall, the World's First Atomic Power Plant. Completed by the British in 1956, Calder Hall uses atomic energy to produce electricity for factories and homes. The British plan to construct at least 16 of these power-generating stations by 1965.

pen in the future when the ability to produce atomic weapons would be no longer a monopoly of Anglo-Americans. This monopoly was brought to an end in the fall of 1949, when the U.S.S.R. exploded an atomic bomb.

The hydrogen bomb

Even more disturbing were the first tests of a hydrogen bomb by the United States Atomic Energy Commission in November, 1952. The tests were conducted at Eniwetok Atoll in the South Pacific, and according to reports an entire island disappeared after burning brightly for several hours. The hydrogen bomb, or H-bomb, is based upon fusion of hydrogen atoms, a process which requires the enormous heat generated by the splitting of uranium atoms to start the reaction. The fusion results in the creation of a new element, helium, which actually weighs less than the sum of the hydrogen atoms. The "free" energy left over provides the tremendous explosive power of the H-bomb. The force of hydrogen bombs is measured in *megatons*, each of which represents 1,000,000 tons of TNT. Thus a 5-megaton H-bomb would equal 250 times the power of the A-bombs dropped on Hiroshima and Nagasaki. By 1957 both the Soviet Union and the United States had exploded numerous hydrogen bombs in experimental tests. Great Britain, also, had conducted at least two test explosions.



Test Explosion of a Hydrogen Bomb, Marshall Islands, 1952. The "mushroom" rose to a height of 10 miles and spread to a width of 100 miles. It eventually fell back into the ocean as radioactive rain, though some of it was distributed by winds over large areas.

The exploration of space

On October 4, 1957, the government of the Soviet Union inaugurated a new stage in man's control of his physical environment by rocketing into space the first artificial satellite, which began circling the earth at a speed of about 18,000 miles an hour. Though it weighed nearly 200 pounds, it was propelled upward higher than 500 miles. This Russian achievement gave the English language a new word—*sputnik*, the Russian for *satellite* or *fellow traveler*. A month later the Soviet scientists surpassed their first success by sending a new

and much larger sputnik to an altitude of approximately 1000 miles. Sputnik II weighed more than half a ton and contained elaborate scientific instruments and even a live dog. These sputniks were doubtless the forerunners of dozens of others to be perfected by the scientists of various nations. In some quarters their launching was considered a development as significant as the voyage of Columbus to the Western Hemisphere. From the most favorable viewpoint they promised vast improvement in our knowledge and would prepare the way for exploration of the moon and eventually of distant planets. But they also had sinister aspects. In Western Europe and the United States the fact that the Russians had launched them loomed as a threat to the peace of the world. Obviously, the U.S.S.R. had rockets of tremendous power, which could be used to propel intercontinental ballistic missiles. The immediate future was thus dark with forebodings of increased competition in the armaments race between East and West.

Advances in biology

Notable advances in the biological sciences also occurred during the period since World War I. An outstanding one was the discovery of the viruses. Viruses are organisms so small that they pass through ordinary filters. Only by means of special filters made of collodion films, or by the use of ultraviolet or electron microscopes, can their presence be detected. They are the cause of a multitude of dread diseases, including smallpox, measles, infantile paralysis, influenza, rabies, yellow fever, and the common cold. No one has yet been able to say whether they should be classified as animate or inanimate objects. In some ways they appear to have the properties of living creatures, including the capacity to reproduce. But they are closely dependent upon their living host, and remain completely dormant except when they come into contact with living tissue. They seem to occupy a kind of intermediate stage between the inorganic and organic worlds, and are sometimes referred to as "the bridge between Life and Death." Perhaps Aristotle was right more than twenty-two centuries ago when he wrote: "Nature makes so gradual a transition from the inanimate to the animate kingdom that the boundary lines which separate them are indistinct and doubtful."

Antibiotics

From time to time during the history of medicine, discoveries have been made which can justifiably be described as epochal, in the sense that they open up new and much greater possibilities for the conquest of disease. One example was the discovery of vaccination for smallpox by Sir Edward Jenner in 1796. Another was the development and proof of the germ theory of disease by Louis Pasteur and Robert Koch about 1881. After 1918 a series of such epochal discoveries laid the foundations for another new era of medical progress. In 1935 a German named Gerhard Domagk discovered the first of the sulfa drugs, which he called sulfanilamide. Soon others were added to the list. Each was found to be mar-

velously effective in curing or checking such diseases as rheumatic fever, gonorrhea, scarlet fever, and meningitis. About 1930 Sir Alexander Fleming described the first of the antibiotics, which came to be known as penicillin. Antibiotics are chemical agents produced by living organisms and possessing the power to check or kill bacteria. Many have their origin in molds, fungi, algae, and in simple organisms living in the soil. Penicillin was eventually found to be a kind of miracle drug producing spectacular results in the treatment of pneumonia, syphilis, peritonitis, tetanus, and numerous other maladies hitherto frequently fatal. About 1940 the second most famous of the antibiotics—streptomycin—was discovered by Dr. Selman A. Waksman. Streptomycin seems to hold its greatest promise in the treatment of tuberculosis, though it has been used for numerous other infections which do not yield to penicillin, including the bubonic plague and tularemia, or rabbit fever. More recently streptomycin has been partly supplanted in the treatment of tuberculosis by isoniazid, a derivative of nicotinic acid. Still other anti-



Preventive Medicine on an International Scale. A technician of the United States Foreign Operations Administration inoculates a child against cholera in Pakistan.

biotics are neomycin, also discovered by Dr. Waksman; aureomycin, effective against Rocky Mountain fever; chloromycetin, valuable in the treatment of typhus and typhoid fever; and terramycin, an efficient specific against undulant fever.

Preventive medicine

Of almost equal importance with the discovery of new drugs has been the development of means of preventing disease. For the most part these have taken the form of vaccination. A characteristic example has been the development of vaccination against poliomyelitis, or infantile paralysis. The process was discovered in 1953 by Dr. Jonas E. Salk, and its use thus far indicates highly successful results. During World War II a remarkable insecticide was perfected which gives promise of the ultimate elimination of two of the most ancient enemies of mankind, malaria and typhus. Popularly known as DDT, it destroys the lice and mosquitoes which transmit these diseases. Recent years have witnessed also the development

and wide though not universal acceptance of the fluoridation process for preventing tooth decay in young people. It consists of the simple expedient of adding sodium fluoride to the water supply of municipalities. So impressive has been the progress in these and other aspects of preventive medicine that some scientists have predicted that in the comparatively near future every infectious disease known to man will have been finally and completely conquered.

2. New Philosophic Tendencies

Herbert Spencer

Most of the philosophic movements in the later decades of the nineteenth century and in the early years of the twentieth were deeply influenced by the progress of science. Characteristic examples are to be found in the evolutionary philosophies of Spencer, Huxley, and Haeckel. The first of this trio, Herbert Spencer (1820–1903), was one of the most influential figures of modern times. Born into a family of English Methodists and Quakers of modest means, he refused the offer of relatives to send him to Cambridge and determined to educate himself and live his own life. He worked for a time as a civil engineer on the London and Birmingham railway. Later he became an assistant editor of the *Economist*, but resigned that position upon inheriting $2500 from an uncle. Despite his humble background, he cared little for wealth or power. Moreover, he was inclined to be indolent, reading but haphazardly and neglecting serious books that failed to arouse his interest. For years his life was ill-planned and his ambitions erratic. He spawned ideas for inventions at every turn and cluttered his notebooks with plans for candle-extinguishers, patent saltcellars, wheel-chairs, and other ingenious contraptions. His earliest writings were on political and social problems, the most important of them being his *Social Statics*, published in 1850. Not until he was about forty did he develop a serious interest in philosophy. He completed his three-volume work, *Synthetic Philosophy*, at the age of seventy-six.

Spencer's evolutionary philosophy

The keynote of Spencer's philosophy is his idea of evolution as a universal law. He was deeply impressed by Darwin's *Origin of Species* and enriched the hypothesis of natural selection with a phrase that has clung to it ever since—"the survival of the fittest." He contended that not only species and individuals are subject to evolutionary change, but also planets, solar systems, customs, institutions, and religious and ethical ideas. Everything in the universe completes a cycle of origin, development, decay, and extinction. When the end of the cycle has been reached, the process begins once more and is repeated eternally. Strange as it may seem, Spencer was not a mechanist. He argued that back of the evolutionary process there must be some kind of supernatural Power, and he generally assumed that in the long run evolution is synonymous with progress. But he referred to this Power as the Unknowable and

declared that it should be dismissed from scientific consideration. Man's capacity for knowledge is limited to matter and motion, to the facts of sensory experience; these alone should constitute the field of his speculation. As a political philosopher, Spencer was a vigorous champion of individualism. He condemned collectivism as a relic of primitive society, as a feature of the earliest stage of social evolution when individuals had not yet been separated from the undifferentiated mass. He held the state in such great abhorrence that he delivered his manuscripts to his publisher in person rather than entrust them to any such agency of tyranny as the post office.

Other evolutionist philosophers: T. H. Huxley

The other two philosophers of the evolutionist tradition, Huxley and Haeckel, accepted a great many of the fundamental suppositions of Spencer's theory. Thomas Henry Huxley (1825–1895) defended the doctrine of evolution, not only with logical arguments but with a convincing array of scientific facts; for he was a brilliant biologist as well as a philosopher. A "square-jawed man, greedy of controversy," he gloried in the title, "Darwin's bulldog." His celebrated book, *Man's Place in Nature*, was almost as influential in converting the world to evolutionary principles as the *Origin of Species.* But Huxley had broader interests than merely defending organic evolution. Like Spencer, he proposed to extend the evolutionary concept to all of the great problems that trouble man's dreams. He argued that social institutions and moral ideals, instead of being divinely ordained, are simply products of a biological heritage. "The actions we call sinful are part and parcel of the struggle for existence." While he did not reject the possibility of a supernatural power, he averred that "there is no evidence of the existence of such a being as the God of the theologians." He pronounced Christianity to be "a compound of some of the best and some of the worst elements of Paganism and Judaism, moulded in practice by the innate character of certain people of the Western world." A large part of his philosophy is embraced in his famous doctrine of *agnosticism*, a word which he invented to express his contempt for the attitude of dogmatic certainty symbolized by the beliefs of the ancient Gnostics. As propounded by Huxley, agnosticism is the doctrine that neither the existence nor the nature of God nor the ultimate character of the universe is knowable. It is not atheism, but simply an affirmation that man does not know and never can know whether a God exists and whether the universe is governed by purpose or is merely a blind machine.

Ernst Haeckel

The most uncompromising of the evolutionist philosophers was Ernst Heinrich Haeckel (1834–1919). Originally a physician in Berlin, he became disgusted with crotchety patients and soon turned to the more congenial occupation of a professor of zoology. He was the first outstanding scientist on the Continent of Europe to subscribe wholeheartedly to Darwinism. At the age of sixty-five he summarized his conclusions in a book which he entitled *The*

Riddle of the Universe. The philosophy of Haeckel comprises three main doctrines: atheism, materialism, and mechanism. He would have nothing to do with Huxley's agnosticism or with Spencer's assumption of an Unknowable Power; on the contrary, he dogmatically affirmed that nothing spiritual exists. The universe, he maintained, is composed of matter alone in a process of constant change from one form into another. This process is as automatic as the ebb and flow of the tides. There is no fundamental difference between living and non-living matter, except that the former is more complex. The first life originated from the spontaneous combination of the essential elements of protoplasm. From these earliest forms of protoplasm all the complex species of the present have gradually evolved through the process of natural selection. Haeckel regarded the mind of man as a product of evolution just as much as his body. The human mind differs only in degree from the minds of the lower animals. Memory, imagination, perception, and thinking are mere functions of matter; psychology should be considered as a branch of physiology. Such was the compact philosophy of materialism and determinism which appeared to Haeckel and his followers to be a logical deduction from the new biology.

Friedrich Nietzsche

The writings of another German—Friedrich Nietzsche—also reveal a decided influence of the idea of evolution. But Nietzsche was not a scientist, nor was he interested in the nature of matter or in the problem of truth. He was essentially a romantic poet glorifying the struggle for existence to compensate for his own life of weakness and misery. Born in 1844, the son of a Lutheran minister, he was educated in the classics at Leipzig and Bonn and at the age of twenty-five was made a professor of philology at the University of Basel. Ten years later he was forced to retire on account of ill health. He spent the next decade of his life in agony, wandering from one resort to another in a fruitless quest for relief. If we can believe his own statement, each year was made up of 200 days of pain. In 1888 he lapsed into hopeless insanity, which continued until his death in 1900.

Nietzsche's philosophy

Nietzsche's philosophy is contained in such works as *Thus Spake Zarathustra*, *A Genealogy of Morals*, and *Beyond Good and Evil.* His cardinal idea is the notion that natural selection should be permitted to operate unhindered in the case of human beings as it does with plants and animals. He believed that such a constant weeding out of the unfit would eventually produce a race of supermen—not merely a race of physical giants but men distinguished above all for their moral courage, for their strength of character. Those who should be allowed to perish in the struggle are the moral weaklings, the ineffective and craven ones, who have neither the strength nor the courage to battle nobly for a place in the sun. But before any such process of natural selection could operate, religious obstacles would have to be removed. Nietzsche therefore demanded that the

moral supremacy of Christianity and Judaism should be overthrown. Both of these religions, he alleged, are Oriental cults glorifying the virtues of slaves and of other downtrodden folk. They exalt into virtues qualities which ought to be considered vices—humility, nonresistance, mortification of the flesh, and pity for the weak and incompetent. The enthronement of these qualities prevents the elimination of the unfit and preserves them to pour their degenerate blood into the veins of the race. Nietzsche admired the ancient Germanic virtues of bravery, strength, loyalty, honor, and cunning. He defined *good* as "all that heightens in man the feeling of power, the desire for power, power itself" *Bad* he characterized as "all that comes from weakness."

The reaction against mechanism and materialism: the doctrines of the Pragmatists

Toward the end of the period we are considering, philosophy began to reflect the uncertainties and confusion of the sciences. The revolution in physics accomplished by the discoveries regarding the structure of matter caused a number of thinkers to lose confidence in the optimism of Spencer and in the mechanistic universe of Haeckel. Some renounced mechanism and materialism entirely; others embraced attitudes of skepticism and hopelessness or sought refuge in the worship of beauty. Symptomatic of the new trend was a popular American philosophy known as Pragmatism. Founded by Charles Peirce (1839–1914), it was developed in comprehensive form by William James (1842–1910) and John Dewey (1859–1952). Pragmatism takes its name from its central teaching that any idea which meets the pragmatic test—that is, gives practical results—must be accepted as true; provided, of course, it does not conflict with experience. In other words, if a belief in a personal God—or in a multitude of gods—gives mental peace or spiritual satisfaction to any individual, that belief is true for him. The Pragmatists scoffed at all efforts to discover absolute truth or to determine the ultimate nature of reality. They abandoned metaphysics as futile and taught that knowledge should be sought after, not as an end in itself, but as an *instrument* for improving conditions on earth. It should be mentioned also that the Pragmatists rejected all forms of determinism, whether conceived in spiritual or materialistic terms. They denounced interpretations of the universe which reduced man to a slave of some rigid principle or placed him at the mercy of an all-powerful Fate.

The New Idealism

A much more determined protest against the mechanism and materialism of the nineteenth century came from the New Idealists. Among the leaders of this school were the Italian Benedetto Croce (1866–1952), the Englishman F. H. Bradley (1846–1924), and the American Josiah Royce (1855–1916). The New Idealism was essentially a compound of the doctrines of Hegel and of Kant. From the former came the tendency to glorify the state and to subordinate the individual to the group; from the latter was derived the idea of parallel truths in religion and science which never con-

flict because they belong in two separate realms. The New Idealists admitted that the universe revealed by science is a gigantic machine which grinds on relentlessly, and that man is a helpless atom. But this revelation did not trouble them, for they contended that it is only part of the picture. Science is but a feeble instrument which enables us merely to see as in a glass darkly. We have other methods of knowing which enable us to perceive not merely surface appearances but reality. If we make up our minds to follow the deepest convictions of our being, we shall see the universe as a star-domed city of God, ruled by benevolent purpose and replete with hope for bewildered man. Truths such as these gained by intuition are more valid than any discovered by the telescope of the scientist. Thus did the New Idealists manage to preserve their faith in religion and in ultimate perfection against the onslaughts of skeptics and materialists.

The New Realists

Certain other philosophers drew far different conclusions. A group known as the New Realists despised the tendency to seek refuge in faith or in any other form of retreat from reason. They conceded that the evidence from science may not be the complete or final truth; but they argued that it is the only truth substantial enough to be taken as a guide for living. They felt that the divorce of philosophy from science was an unmitigated disaster, and that a large proportion of the world's woes could be traced to the growth of mysticism. Though recognizing that science confronts man with a cold and alien universe, they saw in this no need for clinging to the skirts of faith. Even if man is no more than a bundle of atoms, whose gift of immortality is merely to mingle with the dust of centuries, this does not prevent him from living nobly and from waging a good fight to overcome such evils as are within his power. He can at least preserve his self-respect by striving to direct the forces of nature to the good of himself and his fellows, by avoiding any action which may be the cause of suffering to others, and by cherishing "the lofty thoughts that ennoble his little day; disdaining the coward terrors of the slave of Fate, to worship at the shrine that his own hands have built." Such in particular was the philosophy of the Englishman Bertrand Russell (1872–   ), one of the most prominent of the New Realists and a leading philosophical writer of the twentieth century.

The philosophers of aesthetic enjoyment

It remains to consider the ideas of those thinkers who took refuge in an ivory tower of aesthetic enjoyment. Conceiving man to be the helpless victim of blind and irresistible forces, they recommended that he should seek what consolation he could find in a sage and discriminating worship of beauty. They recognized, of course, that not everyone could be an artist, but they insisted that most men could learn to live artistically. The new mood was set by Walter Pater, an English essayist and critic of the late nineteenth century, who taught that the highest solace of life consists in dis-

cerning the splendor of the passing show and in cramming our brief interval on earth with rich and refined experiences. A slightly different note was sounded by Anatole France (1844–1924), who propounded a gospel of calm despair in the face of an implacable Destiny. The realities of life, he thought, are too hard to be endured unless one can develop a taste for irony. Happiness consists in philosophic reflection on the follies and absurdities of the human spectacle, with a tolerant understanding of why men err. The best-known of all the philosophers of aesthetic enjoyment was probably George Santayana (1863–1952), born in Madrid but resident for most of his life in the United States. Santayana's philosophy is distinguished by an urbane skepticism, by a refusal to believe in the God-given authority of any set of ideas or to be swept off his feet by nostrums for a perfect society. He doubted almost everything, even maintaining that the laws of science are no more than observed regularities of phenomena, by no means to be taken as final truths. He saw in disillusionment the beginning of wisdom, for this alone makes it possible to view the issues of life in their just proportions. Acknowledging no absolute certainty in anything, he believed we should seek pleasure in discriminating indulgence of the senses. The part of wisdom is to assume the role of the artist, enjoying in serene detachment whatever color and poetry this world affords.

3. The Age of Realism in Literature

The character of literary realism

The dominant literary trend in the Western world from about 1830 to 1914 was unquestionably *realism*. Classicism was now practically defunct, though romanticism lingered as a secondary trend until late in the century. Still other movements made their appearance from time to time, but none of them attained the sweep and popularity of realism. Literary realism before World War I was distinguished by a number of extraordinary qualities. First, it was a protest against the sentimentality and extravagance of romanticism. The realists portrayed life not in terms of an emotional ideal but in accordance with the hard facts revealed by science and philosophy. Second, realism was distinguished by an absorbing interest in psychological and social problems—in analyzing in detail the conflicting tendencies of human behavior and in depicting the struggles of individuals to overcome the frustrations of their environment. Finally, it should be noted that realists were quite generally governed by one or another of the popular scientific or philosophic conceptions of their time. Perhaps the majority were determinists, holding to the view that mortals are the irresponsible victims of heredity and environment. Others were guided by the evolutionary concept, interpreting man's nature as made up very largely of bestial qualities inherited from his animal ancestors. Still others were swayed by the fervor for social reform and pictured the inequities of the

human scene against a sordid background so as to point the need for abolishing poverty, for eliminating war, or for treating those who had broken the laws of society more justly.

Realism as a distinct literary movement made its initial appearance in France. Its leading exponents were four great novelists who exerted an influence far beyond the confines of their native land. First in order of time, and possibly also of merit, was Honoré de Balzac (1799–1850). In his stupendous *Human Comedy*, Balzac uncovered with brutal frankness the stupidity, greed, and baseness of men and women, chiefly of the bourgeoisie. He delighted in laying bare the hidden springs of human action and in revealing the rottenness behind the polished exterior of respectable society. An even more precise expression of the realist tradition is to be found in the work of Gustave Flaubert (1821–1880). His foremost novel, *Madame Bovary*, is a cool analysis of human degradation. It is a study of the tragic conflict between romantic dreams and the dreary realities of ordinary existence. Though the book was condemned as salacious, and its author prosecuted for publishing an immoral work, it has been acclaimed by some critics as one of the greatest novels in modern literature.

Balzac and Flaubert

Realistic writing of a somewhat different brand flowed from the pen of Émile Zola (1840–1902). Indeed, Zola is sometimes classified as a naturalist rather than a realist, to convey the idea that he was interested in an exact, scientific presentation of the facts of nature without any coloring of personal philosophy. But in actual truth Zola did have a definite philosophic viewpoint. His years of wretched poverty in early life imbued him with a deep sympathy for the common man and with a passion for social justice. Though he portrayed human nature as weak and prone to vice and crime, he was not without hope that a decided improvement might come from the creation of a better society. Many of his novels dealt with such social problems as alcoholism, bad heredity, poverty, and disease. He was an aggressive champion of the Third Republic and toward the end of his life took an active part in exposing the monstrous hypocrisy of the Dreyfus affair. The fourth of the great figures in French realism before World War I was Anatole France (1844–1924). In the section on philosophy in this chapter it was noted that Anatole France preached a gospel of wise and tolerant cynicism. Though he satirized human folly, he seldom gave vent to righteous wrath. His goddess was Irony, a gentle and kindly deity who "teaches us to laugh at rogues and fools whom, but for her, we might be so weak as to despise and hate." Yet his tolerance of evil was by no means unlimited. He joined with Zola in a vigorous attack upon the persecutors of Dreyfus and lent his support to many other unpopular causes. In his later years he became so firmly convinced of the injustice of modern society that he allied himself with the socialists. His works included a varied collection of skeptical essays,

Zola and Anatole France

mischievous short stories, and pungent satires on religion and politics. Among them are *Penguin Island*, *The Revolt of the Angels*, *The Garden of Epicurus*, and *Thaïs*.

Realist literature in England included the writings of the vast majority of the Victorian novelists and dramatists. Among the first of the novelists to employ the methods of realism were William Makepeace Thackeray (1811–1863) and Charles Dickens (1812–1870). Thackeray was the novelist of the elegant world of the aristocracy, though he was far from admiring all of its qualities. He delighted in exposing the scandals of people in high places and in ridiculing their foibles. Like most of the early Victorians, he was inclined toward a self-satisfied moralizing on the evils of mankind. As Thackeray was the representative of the upper classes, so Dickens was the spokesman for the lower. In such novels as *Oliver Twist*, *Nicholas Nickleby*, *Dombey and Son*, and *David Copperfield* he wrote with poignant sympathy of the bitter lot of the poor. He denounced the horrors of the workhouses and scathingly portrayed the delays in the courts and the inhuman treatment of prisoners for debt. Though he was often swept into excesses of sentimentality, his books exerted considerable influence in hastening the progress of social reform.

Thackeray and Dickens

The writings of Thackeray and Dickens were but pale forerunners of the realism expressed by English novelists toward the end of the Victorian Age. Notable among these later giants were George Meredith (1828–1909) and Thomas Hardy (1840–1928). Meredith began his career as a philosophical and psychological novelist in 1859 when he published his *Ordeal of Richard Feverel*, but another quarter of a century passed before he became famous as a master of realism. Though his language was often obscure and his philosophy somewhat mystical, there can be no denying his genius as an artist of human problems. No theme was too big for his canvas, and no motive too subtle for his analysis. The most renowned of late Victorian realists was undoubtedly Thomas Hardy. In such well-known narratives as *The Return of the Native*, *Jude the Obscure*, and *Tess of the D'Urbervilles* he expressed his conception that men are the playthings of inexorable fate. The universe is beautiful, he taught, but in no sense friendly, and the struggle of individuals with nature is a pitiable battle against almost impossible odds. If any such being as God exists, He simply watches with indifference while the helpless denizens of the human ant-heap crawl toward suffering and death. It is to be noted that Hardy's attitude was essentially one of pity for his fellow creatures. He regarded man not as a depraved animal but as an atom of dust caught in the wheels of a cosmic machine.

George Meredith and Thomas Hardy

With the beginning of the twentieth century, realism in English literature took a decidedly different turn. The period from 1900 to 1914 was an era of great progress in social reform and of magnificent

Shaw and Wells

dreams for the future. It was natural that this spirit of confidence and hope should be reflected in the leading writings. The first literary genius to sound the clarion call of the new age was George Bernard Shaw (1856–1950). Born in Dublin of Anglo-Irish parents, Shaw betook himself to London at the age of twenty, where he earned his living as a journalist-critic of art and the drama. He soon became interested in socialism and emerged as a leader of the Fabian Society dedicated to the advancement of a modified Marxism. He combined his enthusiasm for socialism with a devotion to materialistic philosophy, an abiding faith in the value of science, and an acid contempt for the artificialities of bourgeois society. By 1900 he had found his true place in literature as the author of realistic dramas. From then on he wrote an amazing number of plays, on subjects ranging from prostitution to socialism and from the Salvation Army to creative evolution. For the most part, his works were not dramas at all in the conventional sense. They were vehicles for the expression of his ideas, in which the plot was completely overshadowed by witty and incisive dialogue. Likewise didactic in tone was the realism of H. G. Wells (1866–1946). The son of a professional cricket player, Wells devoted his early career to teaching science in a private school. As in the case of Shaw, it was a mixture of socialism and faith in the beneficence of science which provided the inspiration for his work as a writer. Most of the novels he published before 1914 depicted scientific utopias, in which toil and poverty would be eliminated by marvelous improvements in technology, while superstition and war would be banished by proper education. His conception of the tragedy of life was not that of a hopeless struggle against nature but the slavery of individuals to outworn institutions and perverted ideals. Among the best-known of his earlier novels are *Tono Bungay*, *Anne Veronica*, and *The History of Mr. Polly*.

Gerhart Hauptmann and Thomas Mann

Realism was also a virile movement in many other countries. In Germany it was exemplified in the dramas of Gerhart Hauptmann (1862–1946) and in the first great novel of Thomas Mann (1875–1955). Hauptmann was a social dramatist, who chose his main themes from the age-long struggle of the working classes against poverty and ill treatment at the hands of their masters. He also wrote satires and symbolical plays of psychological conflict. The first great novel of Thomas Mann was published in 1903. Entitled *Buddenbrooks*, it relates the story of the rise and decline of a great merchant family of Lübeck. The narrative is presented with the same lingering fondness for significant detail which distinguishes the author's later works.

Henrik Ibsen

Doubtless the most eminent of all the realists of Teutonic nationality was Henrik Ibsen (1828–1906). Though born in Norway, Ibsen was descended from ancestors who were mainly Danish and German. Years of poverty and drudgery in his early life produced a

lasting impression upon his mind and left him resentful and bitter. Until the age of twenty-two nearly all of his education had been acquired by assiduous reading. His early dramas were none too favorably received, and while still a young man he decided to abandon his native country. Residing first in Italy and then in Germany, he did not return permanently to Norway until 1891. His writings were characterized most of all by bitter rebellion against the tyranny and ignorance of society. In such plays as *The Pillars of Society*, *Peer Gynt*, and *An Enemy of the People* he mercilessly satirized the conventions and institutions of respectable life. Along with this scorn for hypocrisy and social tyranny went a profound distrust of majority rule. He despised democracy as the enthronement of unprincipled leaders who would do anything for the sake of votes to perpetuate themselves in power. He makes one of his characters in *An Enemy of the People* say: "A minority may be right—a majority is always wrong."

Realism in American literature

Notwithstanding the strength of the Puritan tradition in the United States, realism as a literary movement was far from unimportant in that country. Traces of it were to be found as early as the middle of the nineteenth century in the novels of Hermann Melville (1819–1891). His masterpiece, *Moby Dick*, combined marvelous description of the wonders and terrors of nature with a profound searching into the mysteries of the universe and of man. But realism scarcely became a dominant force until many years later. Toward the end of the nineteenth century a group of young novelists began writing frankly of political and social abuses, often in such manner as to awaken a desire for reform. Stephen Crane described some of the less romantic aspects of war in his *Red Badge of Courage*. Mark Twain pilloried sham and hypocrisy in a series of novels, the most famous of which was *Huckleberry Finn*. The cut-throat speculation of high financiers furnished the theme for Frank Norris's *Octopus*. But the most typical of the realists before 1914 was Theodore Dreiser (1871–1945). His first novel, *Sister Carrie*, was issued in London in 1901 and in New York in 1907, after considerable trouble with timid publishers. It was followed a few years later by two others of similar type—*Jennie Gerhardt* and *The Genius*. Dreiser's novels were characterized by a rigid determinism which recognized neither purpose in the universe nor meaning in life. But he suffused his writings with a quality of sympathy for his puny figures in their hopeless struggles against the forces of disaster.

Russian literature: Turgeniev and Dostoievski

Another of the great literatures which came into its own during the age of realism was that of the Russians. However, the boundaries separating particular movements in Russian literature are far from distinct. Several of the great novelists combined their realism with attitudes essentially romantic, while others were incorrigible idealists. Among the names that stand out are Ivan Turgeniev (1818–1883), Feodor Dostoievski (1821–1881), and Leo Tolstoi

(1828–1910). Turgeniev, who spent much of his life in France, was the first of the Russian novelists to become known to western Europe. His chief work, *Fathers and Sons,* describes in brooding and delicate gloom the struggle between the older and younger generations. The hero is a nihilist (a term first used by Turgeniev), who is convinced that the whole social order has nothing in it worth preserving. Dostoievski was almost as tragic a figure as any he projected in his novels. Condemned at the age of twenty-eight on a charge of revolutionary activity, he was exiled to Siberia, where he endured four horrible years. His later life was harrowed by poverty, by family troubles, and by epileptic fits. As a novelist, he chose to write of the seamy side, exploring the anguish of miserable creatures driven to shameful deeds by their raw, animal emotions and by the intolerable meanness of their lives. He was a master of psychological analysis, probing into the motives of distorted minds with an intensity that was almost morbid. At the same time he filled his novels with a broad sympathy and with a mystic conviction that the soul of man can be purified only through suffering. His best-known works are *Crime and Punishment* and *The Brothers Karamazov.*

Leo Tolstoi

It is generally conceded that the honor of being Russia's greatest novelist must be divided between Dostoievski and Tolstoi. As a communistic anarchist and an earnest champion of the simple life of the peasant, Tolstoi was somewhat less deterministic than the author of *Crime and Punishment.* Yet in his *War and Peace,* a majestic epic of Russian conditions during the period of the Napoleonic invasion, he expounds the theme that individuals are at the mercy of Fate when powerful elemental forces are unleashed. His other most celebrated novel, *Anna Karenina,* is a study of the tragedy which lurks in the pursuit of selfish desire. The hero, Levin, is really Tolstoi himself, who eventually finds refuge from doubt and from the vanities of worldly existence in a mystic love of humanity. As Tolstoi grew older he became more and more an evangelist preaching a social gospel. In such novels as *The Kreutzer Sonata* and *Resurrection* he condemned most of the institutions of civilized society and called upon men to renounce selfishness and greed, to earn their living by manual toil, and to cultivate the virtues of poverty, meekness, and non-resistance. He set the example by deeding his property to his wife and by adopting the dress and humble fare of the peasant. His last years were devoted mainly to attacks upon such evils as war and capital punishment and to the defense of victims of persecution.

The surviving influence of romanticism: Browning and Tennyson

Realism was by no means the only movement to hold the allegiance of the literary world between 1830 and 1914. Romanticism continued to be exceedingly popular, especially in the realm of poetry. Notable among the poets of this age whose attitudes were essentially romantic were Robert Browning (1812–1889) and Alfred Tennyson (1809–1892). Browning is noted for his sense of the dra-

matic and for his penetrating studies of human character; but, like a true Victorian, he conceived of man as a moral being and the universe as governed by benevolent purpose. His optimism stands out in bold contrast to the fatalism and pessimism of so many of the realists. He understood the baseness of human passions, but he never lost faith in the ultimate triumph of goodness and truth. A poet of much greater fame in his own lifetime was Alfred Tennyson. In 1850 he was made poet laureate, and in 1884 he became Lord Tennyson. His merit, however, consists primarily in his wizardry of words. The majority of his poems are distinguished for their pictures and music rather than for the expression of ideas. His mastery of color and rhythm enabled him to invest the most commonplace thoughts with a power and brilliance that seemed to endow them with lofty and original meaning. Though he tried hard to be a thinker, he seldom did more than reiterate some of the popular ideas of the Victorian Age. He sang the praises of virtue and of patriotism and delved into medieval legends to revive the glories of King Arthur's court. His nearest approach to profundity is *In Memoriam*, written after the death of a beloved friend. It is a series of lyrics in which the author passes from moods of doubt and despair to a final confident hope in "one far-off divine event, To which the whole creation moves."

The romanticism of Carlyle, Ruskin, and Kipling

Three other English authors may also be considered as representatives of the romantic tradition. The first two, Thomas Carlyle (1795–1881) and John Ruskin (1819–1900), were essayists and critics; the other, Rudyard Kipling (1865–1936), was a poet and a writer of popular stories. Thomas Carlyle is perhaps best known for his theory that heroic individuals are the makers of history and for his trenchant criticisms of nineteenth-century culture. Industrialism, democracy, materialism, science, and Utilitarianism were the objects of his special fury. A victim of chronic dyspepsia, he often appeared to be crabbed and unreasonable. Yet he was not a mere pessimist and faultfinder. He had a keen perception of the real weaknesses of many modern institutions, and he anticipated some contemporary European ideas of the right of the strong to rule. Carlyle and Ruskin had several attributes in common. Both had a tendency to look back to the Middle Ages. Neither had much use for democracy. Ruskin as much as Carlyle detested the factory regime and abhorred the crude materialism of nineteenth-century science. But Ruskin's philosophy was more nearly that of the aesthete and social reformer. He was repelled not only by the poverty and degradation of the industrial system but also by its ugliness. He condemned the ferocious capitalist struggle for profits and urged that workers should be treated as partners in industry, entitled to a more generous share of what they produced. The romanticism of Rudyard Kipling was of an altogether different sort. He had no interest in either the social or the artistic implications of the industrial regime. In his

poetry he trumpeted the glories of British imperialism, representing the subjugation of Hindus and Africans as a glamorous missionary enterprise to rescue the heathen from darkness. His prose narratives are mainly stories of adventure, rich in sentimental fondness for the enchantments of India but not very significant from the standpoint of ideas.

4. The Birth of Modern Art

From 1830 to about 1860 the leading trend in painting was undoubtedly romanticism. Its most significant expressions were to be found in the work of the Pre-Raphaelites and of Jean François Millet (1814–1875). The chief figure in the Pre-Raphaelite movement was Dante Gabriel Rossetti (1828–1882), an Englishman of Italian ancestry who is better known as a poet than as a painter. Rossetti and his followers aimed to restore painting to the simplicity, directness, and naturalism which they believed it to have possessed in the Middle Ages and in the early Renaissance. All of the artificial and decorative tendencies that had appeared since the time of Raphael they deeply deplored. Repudiating the ideal of pure beauty, they insisted that art, in order to be worthy of the name, must be directly related to life; it must be useful, either in ministering to the needs of man or in conveying intellectual meaning.

Romanticism in painting: the Pre-Raphaelites

A much greater painter than any of the members of the Pre-Raphaelite group was Jean François Millet. Though associated with the Barbizon school, Millet did not always follow the Barbizon tradition of romantic landscape painting. His paramount interest was in depicting the struggles of humble toilers against poverty and the cruel whims of nature. In *The Man with the Hoe* and *The Sower* he interpreted the bitter life of the peasant in a manner quite worthy of his realist successors. But in *The Angelus* and in *The Path through the Wheat* he betrayed the romantic fondness for sentimental piety and for intensity of color.

Millet

The development of realism in nineteenth-century painting is generally associated with the work of Gustave Courbet (1819–1877) and Honoré Daumier (1808–1879). Both were concerned with presenting the facts of life as they saw them, often in a coarse or satirical fashion. They were rebellious against classical and romantic traditions and intensely conscious of the social significance of art. Profoundly sympathetic toward the lower classes, especially the poor of the cities, they delighted in portraying scenes of squalor and misery and in pillorying the vices and foibles of the comfortable bourgeoisie. Daumier, in particular, was a powerful satirist of social and political evils. He ridiculed the corruption of petty officials, the pompous blundering of lawyers and judges, and the hypocritical piety of the rich. Courbet won great popularity by scornfully refusing the cross of the Legion of Honor offered to him by Napoleon III.

The realist painters, Courbet and Daumier

Both Courbet and Daumier were zealous champions of the victims of oppression and exploitation, performing a function in art somewhat similar to that of Dickens and Zola in literature. Of course, not all of their painting took the form of social indictment. Much of it was mild and sympathetic portrayal of homely scenes from the lives of the poor. Whatever the subject, they strove to present it without the sentimental embellishments of the romantic schools.

Impressionism

The first completely original movement in nineteenth-century painting was *impressionism*. In a sense, the impressionist was a realist, for he was determined to paint only what he saw, and he was vitally interested in the scientific interpretation of nature. But his technique was different from that of the older realists. He did not depict scenes from the world around him as they would appear after careful study or thoughtful analysis. On the contrary, he sought to present the immediate impressions of his senses, leaving it to the mind of the observer to fill in additional details. This often resulted in a type of work appearing at first glance to be non-naturalistic. Figures were commonly distorted; a few significant details were made to represent an entire object; and dabs of primary color were placed side by side without a trace of blending. Convinced that light is the principal factor in determining the appearance of objects, the impressionists fled from the studio to the woods and fields in an attempt to capture the fleeting alterations of a natural scene with each transitory shift of sunlight and shadow. From science they had learned that light is composed of a fusion of primary colors visible in the spectrum. Accordingly, they decided to use these colors almost exclusively. They chose, for example, to achieve the effect of the green in nature by placing daubs of pure blue and yellow side by side, allowing the eye to mix them. Some of their paintings appear at close view to be nothing but splotches of color, but if studied from across the room, they gradually reduce themselves to a natural design, in which mountains, trees, houses, and the like are more or less clearly discernible.

The impressionist painters

Like so many of the other artistic movements of modern times, impressionism originated in France. It was founded about 1870 by Édouard Manet (1832–1883), who had been deeply affected by a study of the old Spanish masters, especially Velásquez. Probably the greatest of the impressionists were Claude Monet (1840–1926) and Auguste Renoir (1841–1919). Monet was perhaps the leading exponent of the new mode of interpreting landscapes. His paintings have no structure or design in the conventional sense; they do not depict, but subtly suggest, the outlines of cliffs, trees, mountains, and fields. Intensely interested in the problem of light, he would go out at sunrise with an armful of canvases in order to paint the same subject in a dozen momentary appearances. It has been said of one of his masterpieces that "light is the only important person in the picture." The work of Renoir exhibited a greater variety than that

of any of his compeers. His subjects include not only landscapes but portraits and scenes from contemporary life. He is famous most of all for his pink and ivory nudes, done in a manner reminiscent of Titian or Rubens. Renoir made use of the familiar device of spots of sunlight for the purpose of bringing certain parts of a picture into high relief, but he presented his subjects with much more solidity of form than did the other members of his group. To this day he is the most popular of the impressionists.

Post-impressionism

For upwards of twenty years impressionism flourished as the dominant style of painting in nearly all countries of the Western world. But in the 1890's it yielded its popularity to a new movement, which is called for want of a better name *post-impressionism*. The post-impressionists criticized the formlessness and lack of volume of their predecessors. They contended that the figures of the painter's art should be as solidly and completely molded as statues. They objected also to the impressionist's preoccupation with the casual and momentary aspects of nature, and they deplored his indifference to ideas. The expression of meaning, they argued, should be the fundamental purpose of art; form and method are not ends in themselves but are important only in so far as they contribute to the expression of meaning. Post-impressionism was not only a reaction against impressionism, but in its ultimate tendencies, at least, it was a revolt against all of the hide-bound formulas of the past. It was an expression of the chaos and increasing complexity of the machine age. It symbolized the restlessness and bewilderment which accompanied the emergence of a new society during the closing years of the nineteenth century. It was the beginning of nearly all that we now understand by *modern* art.

Cézanne

The artist who laid the foundations of post-impressionism was Paul Cézanne (1839–1906), now recognized as one of the greatest painters who ever lived. A native of southern France, Cézanne wandered through the world of art as in a dream. Ever hopeful of reaching some higher goal of achievement, he cared little for the works he had finished. His son cut out the windows of some of his masterpieces for amusement, and his servant used others to clean the stove. Cézanne viewed these disasters quite calmly, for he was convinced that he would produce much better work in the future. His aim as a painter was to represent nature in such a way that objects on a flat canvas would appear to have the roundness and depth of sculpture. To accomplish this he practiced mild distortion, applied paint in thick layers, and modeled his figures with meticulous care. So well did he succeed that it has been said that since Cézanne there is no longer any excuse for sculpture.

Gauguin and Van Gogh

The influence of Cézanne was reinforced and extended by two other great artists of the post-impressionist manner. One was the half-Peruvian Frenchman, Paul Gauguin (1848–1903), and the other was the Dutchman, Vincent Van Gogh (1853–1890). Both were

revolutionary in their methods. Gauguin threw off all the restraints of conventional painting. Declaring that the artist should not be the slave either of nature or of the past, he introduced into his work an exotic symbolism and the most startling adaptations of color. His cardinal purpose was to emotionalize nature, to portray the world in accordance with his own subjective feelings. Gauguin is important also as a symbol of the disillusionment which spread through intellectual and artistic circles toward the end of the nineteenth century. Dismayed by the complexity and artificiality of civilization, he fled to the South Sea islands and spent the last decade of his life painting the hot and luscious colors of an unspoiled, primitive society. He was the forerunner of an extensive primitivist movement in twentieth-century art. For a time Gauguin was a friend of the Netherlands painter Van Gogh, but the friendship abruptly ceased when he awoke one night to find the Dutchman advancing upon him with a knife. Van Gogh was unquestionably insane; he cut off one of his ears and carried it to a woman who had offended him, and he finally took his own life. Yet there can be no denying his genius. The vibrant energy and turbulent emotionalism of his paintings have probably never been equaled. In order to express the intensity of his feelings, he worked with feverish haste, applying directly to his canvas little worms of violent color which he squeezed from his tubes of paint. Van Gogh has been the chief inspiration for nearly all those modern painters who see in the expression of subjective ideas the exclusive function of art.

Cubism

In the years between 1900 and World War I modern art underwent still further revolutionary development. First, Henri Matisse (1869–1954) greatly extended Cézanne's use of distortion and gradually evolved a type of painting which definitely repudiated fixed ideas of aesthetic merit. This tendency was carried much farther by Pablo Picasso (1881–   ), a Catalan Spaniard who came to Paris in 1903 and founded *cubism*. Picasso's art takes its name from his attempt to resolve each figure or object into its underlying geometric elements. It is based upon a doctrine once casually enunciated by Cézanne that the fundamental ideas of form could best be expressed through such shapes as cubes, cones, and cylinders. Picasso took this doctrine literally. But cubism is much more than this. It involves not only distortion but in some cases actual dismemberment. The artist may separate the various parts of a figure and rearrange them in other than their natural pattern. The purpose is partly to symbolize the chaos of modern life but also to express defiance of traditional notions of form—to repudiate the conception of art as mere prettiness. It is for this latter purpose also that the extreme cubists have generally avoided the use of color.

Futurism

Another of the main offshoots of post-impressionism which made its appearance before World War I was *futurism*. The spiritual father of futurism was a poet, F. T. Marinetti, who later took an

active part in launching Italian Fascism. In 1910 Marinetti and a group of disciples issued a stirring manifesto calling for relentless war against the aesthetic ideals of the past. They condemned the worship of old masters, the slavish devotion to Roman ruins and to the art of the Renaissance, "the erotic obsession," "purism," sentimentality, quietism, and nature-worship. As painters the futurists aspired to glorify the machine and the achievements of modern science. They regarded it as imbecilic that an artist surrounded by the wonders of the modern scientific age should spend his time mooning over pastoral landscapes or attempting to recapture the beauty of classical mythology. Taking their cue from the discovery in physics that the ultimate fact of nature is energy, they insisted that *movement* should be the principal theme of art. Accordingly, they proceeded to break up form in such a manner as to produce the illusion of shimmering and vibration. They loved to depict the motion of a racing animal, the speed of an automobile, or the power and beauty of some complicated machine in a factory. Futurism has exerted a decided influence, especially upon the interior decoration of modern skyscrapers, railroad stations, and government buildings.

Sculpture in the age of democracy and nationalism

Although sculpture flourished in abundance during the age of democracy and nationalism, there was comparatively little that could be considered significant. Most of it was an imitation of the baroque—grandiose, heavy, and exuberantly decorative. It was developed largely for patriotic purposes, to embellish monuments celebrating national greatness. But in the later years of the nineteenth century there was at least one sculptor whose work stands out as original. He was the Frenchman Auguste Rodin (1840–1917), and his achievements have been compared not unfavorably to those



Auguste Rodin, *The Thinker*. An example of realism in sculpture apparently suggesting that man's intellectual faculties are inseparable from his animal heritage. The first copy was destroyed by students of conservative sculptors, but the statue was recast by Rodin.

of Michelangelo, by whom he was strongly influenced. Rodin was pre-eminently a realist, but he also reflected the currents of romanticism and impressionism. He was interested in psychological analysis and in man's animal origins and his struggle against the forces of nature. His most elaborate work was *The Gate of Hell*, inspired by Dante's *Inferno*. It is a tragedy depicting the sufferings of the great mass of mankind, damned by the passions of their animal natures. Rodin is perhaps even better known for his statue, *The Thinker*, which suggests the evolution of man from lower species. Soon after the dawn of the twentieth century, sculpture began to exemplify certain traits of post-impressionist painting. It grew more and more abstract and distorted, indicating the strength of the revolt against prettiness and sentimentality.

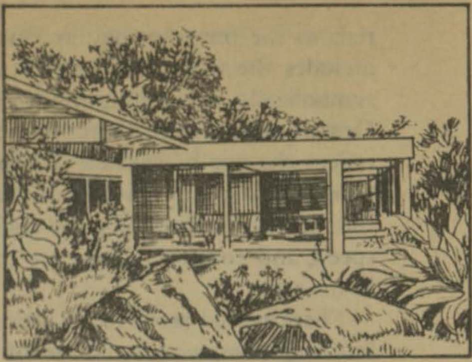
Architecture

As in sculpture, so in architecture the influence of the past was exceedingly strong. Until nearly the end of the nineteenth century the builder's art continued to be governed by classical and medieval principles. In general, it was the classical that predominated, exemplified especially by the survival of the ponderous and ornate baroque. Monuments of this style include the National Opera (1864–1871) in Paris and the Reichstag building (1882–1894) and Protestant cathedral (1888–1895) in Berlin. In some cases nineteenth-century baroque buildings were embellished with forms of construction taken from Byzantine, Egyptian, Chinese, Moorish, and Hindu sources. The result was an unparalleled eclecticism bearing testimony to the imperialistic ambitions of European nations. But accompanying this development of the baroque, there was a vigorous revival of the Gothic. The renewal of interest in Gothic architecture was a product of the romantic tendency to glorify everything medieval. Just as old legends of knights in armor had been refurbished by poets, so there must be a return to the building style of the thirteenth century. Consequently Gothic was adopted on a generous scale for churches, universities, and even for some parliament and office buildings. The crowning monstrosity of all was probably the Woolworth skyscraper in New York City, with its pointed arches and ornamental flying buttresses—features having little or no relation to the general purpose of the building.

Development of functional architecture

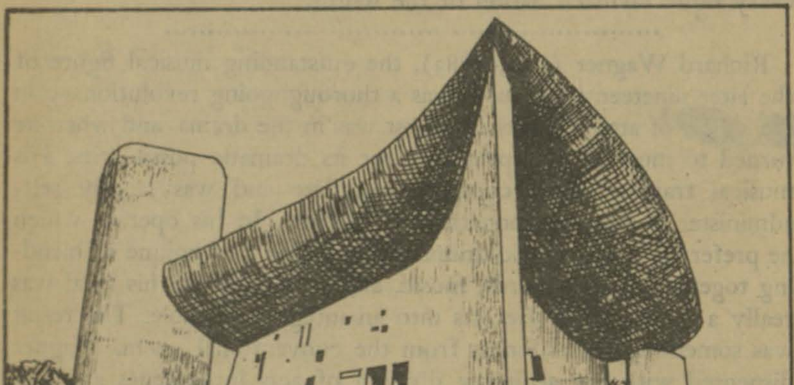
Between 1880 and 1890 certain architects in Europe and America awoke to the fact that the prevailing styles of building construction were far out of harmony with the facts of modern civilization. The result was the launching of a new architectural movement known as *functionalism*. Its chief pioneers were Otto Wagner (1841–1918) in Germany and Frank Lloyd Wright (1869–) in the United States. The basic principle of functionalism is the idea that the appearance of a building shall proclaim its actual use and purpose. There must be no addition of friezes, columns, tracery, or battlements merely because some people consider such ornaments beautiful. True beauty consists in sincerity, in an honest adaptation of mate-

A House in the Contemporary Style. The Warren Tremaine residence in Santa Barbara, California, designed by Richard J. Neutra. The pattern of the house is made to blend with the natural surroundings.





The Contemporary Principles Applied in a Skyscraper. Buildings in this style take advantage of the newest materials—stainless steel, aluminum, glass—and make maximum provision for light and ventilation. Lever House, New York; Skidmore, Owings, and Merrill, Architects.



The International Style Applied to a Chapel. Illustrated is the Ronchamp Chapel designed by Charles-Edouard Jeanneret, better known by his pseudonym Le Corbusier. He believes that architecture should approach as closely as possible to sculpture and that a building should be a "machine to live in" providing its occupants with "sun, space, and silence." Unlike Frank Lloyd Wright and his disciples, he designs his structures with a disregard for their natural surroundings.

rials to the purpose they are intended to serve. Functionalism also includes the idea that architecture shall express either directly or symbolically the distinguishing features of contemporary culture. Ornamentation must therefore be restricted to such elements as will reflect the age of science and the machine. Modern man does not believe in the Greek ideals of harmony, balance, and restraint or in the medieval virtues of piety and chivalry; but in power, efficiency, speed, and comfort. These are the ideals which should find a place in his art.

The significance of functional architecture

There would seem to be little doubt that the functional style of building construction is one of the most significant architectural developments since the Renaissance. Among all of the styles which have been adopted during the last 300 years, it is the only one that is really original. Known also as *modern* architecture or the *international* style, it is the best approach that has yet been made to an efficient use of the tremendous mechanical and scientific resources of the contemporary world. It permits an honest application of new materials—chromium, glass, steel, concrete—and tempts the builder's ingenuity in devising others. Though many people dislike its stark simplicity and its angular, cubist lines, functional architecture has undoubtedly won an established place for the future. It has been adopted for countless new apartment houses, hotels, office buildings, stores, and factories not only in the United States but also in nearly every other civilized nation of the world.

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The revolutionary achievements of Wagner

Richard Wagner (1813–1883), the outstanding musical figure of the later nineteenth century, was a thoroughgoing revolutionary in the world of art. His initial interest was in the drama, and when he turned to music it was primarily for its dramatic possibilities. His musical training came comparatively late and was largely self-administered, but was nonetheless adequate. In his operas—which he preferred to call music-dramas—he applied a technique of blending together action, words, music, and scenic effects; his ideal was really a fusion of all the arts into an integrated whole. The result was something far different from the conventional opera. Wagner dispensed with the arbitrary division of acts into scenes and discarded all artificial trappings; he took wide liberties with harmony and departed from stereotyped melodic patterns. He sought for a continuous flow of music, not subject to the tyranny of form but sensitive to every demand of expression. In several ways his operas, especially the later ones, which include the famous *Ring* cycle, are reminiscent of ancient Greek drama. His plots deal with the gods and heroes of Teutonic mythology, and the orchestra provides the background and atmosphere somewhat as the chorus did in the Greek theater. However, the lofty idealism of the Greek tragedians is not approached in the *Ring* operas, which, in spite of the magnificence and sensuous beauty of the music, sometimes seem to be

glorifying a cult of brutality and egoism. (The philosopher Nietzsche was for a time an ardent admirer of Wagner.) Wagner's revolutionary impulses, which were not confined entirely to aesthetics, brought down a storm upon his head, and he was forced to flee from Germany for a time. The last twenty years of his life, however, saw the triumphal performance of his works, especially at the Bayreuth opera house built under Wagner's own direction, which has ever since been a musical shrine.

DOM MINA
INUS TIO
ILLU MEA